ICSG DIRECTORY OF COPPER MINES AND PLANTS (semi-annual)

The Directory of Copper Mines and Plants highlights current capacity and provides a five-year outlook of forecasted capacity for over 1,000 operating and planned copper mines, smelters and refineries on a country by country basis, including separate tables for SX-EW plants. Salient details for each operation are included and the Directory separates operations between Operating, Developing, Feasibility or Exploration status. Salient details for each operation include information on ownership, start-up/closure date, process, by-products, concentrate grade, smelter/refinery feed and latest available information/developments on each mine, smelter and refinery.

The subscription price for the annual service (2 issues) is €550 for subscriptions originating from institutions based in ICSG member countries* and €850 for subscriptions from non-ICSG member countries. Single copies are available for €400 per year (ICSG member countries*), €700 per year (non-ICSG member countries).

The Directory is available in PDF and Excel formats.

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DIRECTORY OF COPPER MINES AND PLANTS

Up to 2017

July 2014

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International Copper Study Group
www.icsg.org

FOREWORD

This Directory provides basic data for all copper mining, smelting and refining operations on a world-wide basis, and projects the development of future capacities for these operations.

The Directory highlights capacities for more than 650 operating and planned copper mines, 140 smelters and 250 refineries on a country by country basis, including separate tables for SX-EW plants. Salient details for each operation are provided and operations are sorted by their current status as either Operating & Developing or Planned (Exploration & Feasibility).

The Directory shows capacity projections for four years. These projections may serve as a basis for forecasts of the supply side development of copper.

The database is continuously updated to reflect recent announcements and operational changes. The updated Directory issues are published on a semi-annual basis.

Each issue contains a long-term development of capacities for World totals broken down by production processes. Summary data for each country cover a period of thirteen years. The tables with the details by mine/ operations show the capacities for a base year and the projection of the capacities for four years.

It should be noted that the individual capacity data are rounded to full 1,000 tonnes which could lead to minor differences between the accumulated value from the individual operations shown for a country and the total for a country.

In addition to member surveys, the information in the report is based on company announcements and reports and is subject to change.

NOTE TO READERS

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Latest Update: 30th July 2014

All enquiries relating to this publication should be addressed to Ana Rebelo, Director od Market Research and Statistics.

Tel: 351 21 351 3870
Fax: 351 21 352 4035
e-mail: rebelo@icsg.org

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NOTE ON OPERATIONAL CAPACITY AND INACTIVE CAPACITY

Readers should note the treatment of capacities of facilities with temporary curtailments or on care & maintenance.

If a mine or plant closure or cutback is announced to be temporary, with the facilities available for restart should market conditions warrant (care & maintenance), the capacity will be retained in the Directory. Only if the closure is assumed to be permanent, or if restart would require significant new capital investment, will the capacity be removed. The capacity which is on care & maintenance or temporarily cutback represents 'swing' capacity to the market.

DEFINITIONS

Copper Capacity: Capacity reflects a plant's annual production capability for copper units, whether contained in concentrate, anode, blister, or refined copper. In the case of mines the projected production might be taken as capacity. Capacity is generally stated pro-rata for the months of the year of initial start-up, but may include a full year's capability during closure. **If a mine closure is announced as temporary or kept on care & maintenance, the capacity will still be shown. Only if the closure is assumed to be definite will the capacity be removed.**

At the ***mine level*** plant capacity is usually determined by a combination of engineering factors, such as gross tonnage of milling capacity and feed grades that determine long-term sustainable production rates. Mine capacity is not generally adjusted to reflect short-term variations in ore grade but would reflect long-term trends in ore grade. Electrowinning capacity at both the mine and refinery level is usually determined by tankhouse parameters.

As with mines, ***smelter capacity*** reflects a combination of engineering factors, such as furnace size and average feed grades. While this equation is relatively straightforward for a primary smelter that mainly processes concentrate, capacity measurement for secondary smelters may be complicated by the variety and mix of feed materials (blister, low-grade scrap, high-grade scrap, etc.). In general, smelter capacity at secondary smelters reflects anode production capacity or, in the absence of an anode furnace, blister capacity. Smelting capacity generally excludes capacity used for treating spent anodes derived from internal sources.

Electrolytic refinery capacity is usually determined by tankhouse engineering parameters. Fire refinery capacity reflects a combination of feed mix and engineering parameters.

Current Status: Mines and plants are classified according to their current status. Mines in **exploration status** are those for which mine development intentions have been announced, but for which final feasibility studies have not been initiated, or which may still be undergoing exploratory drilling. Mines in feasibility status are either undergoing final feasibility studies, or have completed feasibility studies in preparation for financing. Mines or plants under **development status** have generally secured financing and are under, or about to begin, construction. Plants in **planned status** are those that have not secured financing and are not under construction. **For mines under feasibility or exploration status and plants under planned status, capacity data may not be included in the country totals if start-up dates are unknown.** Therefore effective country totals can be higher and will be updated as soon as each planned mine or plant start-up dates are publicly announced.

Other Metals: By-product, co-product, or principal metal or mineral products recovered along with copper, whether recovered in separate concentrates or from downstream processing, are listed. Standard chemical symbols are used to indicate elemental products. PGM refers to the platinum group of metals.

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Owners: This may be either the operating company (in the case of partnerships) or the parent company. It does not always include joint venture partners.

Refinery Process: Refineries are distinguished by process type, including fire refineries which process mainly scrap, or electrolytic refineries whose feed anode is associated with a secondary smelter (indicated by (S) following the process type).

Smelter/Plant Process: Here the basic furnace types are distinguished, including plants that process primarily scrap to produce blister or anode (indicated by (S) following the furnace type).

Start Up: Where this is known, it relates to the first year of commercial production. Occasionally, a mine or plant may have been shut down for a significant period and then reopened. In this case, there may also appear an additional date. A second date may also relate to a significant plant renovation. Periods of incremental capacity increases are not noted.

Symbols/Abbreviations: All capacities are in thousand metric tonnes, rounded to the nearest unit, unless otherwise indicated. A zero will appear where the amount is less than one-half unit. "Tonnes-per-year" may be abbreviated as "tpy" and "thousand-tonnes-per-year" abbreviated as "ktpy". "Concentrates" may be abbreviated to "concs", "production" to "prod", "expansion" to "exp", "capacity" to "cap" and "Care and Maintenance" to "C&M".

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List of Company Homepages in the Internet

Company	Homepage
Abacus Mining & Exploration Corp.	www.amemining.com
Adastra Minerals	www.adastramin.com
Adrian Resources	www.adrian.com/
African Barrick Gold	www.africanbarrickgold.com
African Copper Plc	www.africancopper.com
African Eagle Resources	www.africaneagle.co.uk
Afri-can Marine Minerals Corp.	www.afri-can.com
African Rainbow	www.arm.co.za
Africo Resources	www.africoresources.com
Agnico Eagles Mines	www.agnico-eagle.com/
Alacer Gold	www.alacergold.com
Alara Resources	www.alararesources.com.au
Almalyk Mining	www.agmk.uz
Alta Vista Ventures Ltd	www.altavistaventures.ca
Altona Mining Ltd	http://altonamining.com/
Alturas Minerals	www.alturasminerals.com
Amanta Resources Ltd.	www.amantaresources.com
AMT International Mining	www.amtmining.com/
Andean American Mining Corp.	www.andeanamerican.com
Anglo American	www.angloamerican.co.uk
Anglo Platinum	www.angloplatinum.com
Antares Minerals	www.antaresminerals.com
Antofagasta Holdings	www.antofagasta.co.uk/home.html
Anvil Mining	www.anvilmining.com
Apoquindo Minerals Inc	www.apoquindominerals.com
Aquarius Platinum Ltd.	www.aquariusplatinum.com
Arabian American Development Co.	www.arabianamericandev.com
Arimetco International Inc.	www.arimetco.com
Armenian Copper Program	www.acp.am/
Asarco Inc.	www.asarco.com
Asarel Medet	www.asarel.com
A-Tec (RTB Bor)	www.a-tecindustries.com
Atico Mining Corp.	www.aticomining.com
Atlantic Copper S.A.	www.atlantic-copper.es
Atlas Mining & Development Corp	www.atlasphilippines.com
Augusta Resources	www.augustaresource.com
Aur Resouces Inc.	www.aurresources.com
Aura Minerals	www.auraminerals.com
Aurubis	www.aurubis.com
Australian Mining Resources	www.australianmininginvestments.com/
Aynak Copper Mine	www.aynakcoppermine.com
Azco Mining	www.azco.com/
Baikal Mining Company	www.bgk-udokan.com
Baja Mining Corp.	www.bajamining.com
Barrick	www.barrick.com/
Barrick Gold	www.barrick.com/
bcMetals	www.bcmetalscorp.com/
Bell Copper Corporation	www.bellcopper.net
BHP Billiton	www.bhpbilliton.com
Birla Copper	www.hindalco.com
Black Fire Minerals Inc	www.blackfireminerals.com.au
Black Mountain Mineral Dev. Co.	www.breakwater.ca/
Boliden AB	www.boliden.ca

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List of Company Homepages in the Internet

Company	Homepage
Brazilian Resources	www.brazilianresources.com
Breakaway Resources	www.breakawayresources.com.au
Breakwater	www.breakwater.ca
BRGM	www.brgm.fr/
Caledonia Mining	www.caledoniamining.com
Cambior Inc.	www.cambior.com/
CAMEC	www.camec-plc.com
Campbell Resources	www.ressourcescampbell.com
Candente Copper Corp	www.candente.com
Cape Lambert Resources	www.capelam.com.au
Capstone Mining Corp.	www.capstonemining.com
Caraíba Metais S.A. (Paranapanema S.A.)	www.paranapanema.com.br/
Catalyst Copper Corporation	www.catalystcopper.com
CBH Resources	www.cbhresources.com.au
Celtic Resources	www.celticresources.com
Centenario Copper Chile	www.centenariocopper.com
Central Asia Metals Plc	http://centralasiametals.com
Centromin Peru S.A.	www.centromin.com.pe/
Cerro Flow Products Co.	www.cerrocu.com
CGA Mining Ltd	www.cgamining.com
Chaco Resources	www.gmslimited.co.uk/
Chariot Resources	www.chariotresources.com/
China Metallurgical Group Corp.	www.mcc.com.cn
Chinalco	www.chinalco.com
Chinalco Yunnan Copper Resources Limited	www.cycal.com.au
Citadel Resource Group	www.citadelrg.com.au
City Energy & Infrastructure LLC	http://city-infra.com/index.html
Cityview Corporation Ltd.	www.cityviewcorp.com
Climax Mining	www.climaxmining.com.au/
Codelco	www.codelco.com
Collahuasi	www.collahuasi.cl
Comibol	www.comibol.gov.bo
Compañia de Minas Buenaventura	www.buenaventura.com
Compañía de Minas Buenaventura	www.buenaventura.com
Compañia Minera Atacocha	www.atacocha.com.pe
Compañia Minera Milpo	www.milpo.com.pe
Compañias de Minas Buenaventura	www.buenaventura.com
Compass Resources NL	www.compassnl.com.au
Compasses Resources NL	www.compassnl.com.au
Condor Resources plc	www.condorresources.com
Constantine Metal Resources Ltd.	www.constantinemetals.com
Constellation Copper	www.constellationcopper.com
Continental Minerals Corp	www.hdgold.com
Copper Development Corp.	www.copperdevelopmentcorp.com
Copper Fox Metals, Ltd	www.copperfoxmetals.com
Copper Mesa Mining Corp.	www.coppermesacorp.com
Copper Mines of Tasmania	www.cmt.com.au
Copper Mountain Mining Corporation	www.cumtn.com
Copper North Mining Corp.	www.coppernorthmining.com
Copper Resources Corp	www.copperresources.com
CopperCo Ltd.	www.copperco.com.au/
Coro Mining	www.coromining.com
Coronado Resources Ltd.	www.coronadoresourcesltd.com

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Company	Homepage
CRONIMET Mining GmbH	www.cronimet.de
CS Mining	www.csmining.com)
CSA Mine (Cobar)	www.cmpl.com.au
Csepel Metal Works	www.interdnet.hu/csmw
CST Mining Group Ltd	www.cstmining.com
CUPROM SA	www.cuprom.com
Dachang Copper (Shanghai)	www.dccopper.com
DeepGreen Resources Inc.	http://deepgreenresources.com/index.html
Demir Export	www.demirexport.com
Discovery Metals	www.discoverymetals.com.au
Doe Run	www.doerun.com
Dowa Mining Co. Ltd.	www.dowa.co.jp
Duluth Metals Ltd	www.duluthmetals.com
Dundee Precious Metals	www.dundeeprecious.com
Earthstone Metals Group	www.earthstonegroup.com
Ecuacorriente	www.ecuacorriente.com
El Niño Ventures	www.elninoventures.com
Eldorado Gold Corp.	www.eldoradogold.com
Elektrosan	www.elektrosan.com.tr
Emed Mining	www.emed-mining.com
Empresa Nacional de Minera (ENAMI)	www.enami.cl
Entrée Gold Inc.	www.entreegold.com
Equatorial Mining	www.equatorial.com.au
Equinox Resources	www.eqr.com.au
ER Bakir Elektrolitik	www.erbakir.com.tr
Erbakir	www.erbakir.com
Erdenet Mining & Concentrating	www.erdenetmc.mn
Escondida	www.escondida.cl
Essex Group	www.essexgroup.com
Eti Bakir SA	www.etibakir.com.t
Etibank (KBI)	www.etimaden.gov.tr/
Eurasian Minerals Inc.	www.eurasianminerals.com
Europa Metalli SpA	www.europametalli.it
European Goldfields	www.egoldfields.com
European Minerals Corporation	www.europeanminerals.com
Exall Resources	www.exall.com/
Excelsior Mining Corp.	http://excelsiormining.com
Exceter Reseouce Corporation	www.exeterresource.com
Exeter Resource Corp.	www.exeterresource.com
Far West Mining Ltd	www.farwestmining.com
Finders Resources Limited	www.findersresources.com
First Quantum	www.first-quantum.com
Formation Capital Corp.	www.formcap.com
Fox resources	www.foxresources.com.au
Freeport McMoRan	www.fcx.com
Frontera Copper	www.fronteracopper.com/
Frontier Mining Ltd	www.frontiermining.kz
Fuchunjiang	www.fcjyelian.com/
Furukawa Co. Ltd.	www.furukawa.co.jp
Gecamines	www.gecamines.cd
General Metals	www.generalmetals.com/
General Moly Inc	www.generalmoly.com
George Forrest International	www.forrestgroup.com/

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Company	Homepage
Glencore Int.	www.glencore.com/
Global Copper Corp.	www.globalcopper.com
Global Gold Corp.	www.globalgoldcorp.com
Globe Star Mining Corp.	www.globestarmining.com
Gold Fields	www.goldfields.co.za
Gold Reserve Inc.	www.goldreserveinc.com
Goldcorp Inc.	www.goldcorp.com/
Golden Arrow Resources	www.goldenarrowresources.com
Golden Chalice Resources Inc.	www.goldenchaliceresources.com
Golden Cross Resources	www.goldencross.com.au/Main/home.asp
Golden Resources	http://goldenarrowresources.com
GoldQuest Mining Corp.	www.goldquestcorp.com
Greenock Resources	www.greenockresources.com
Grupo Mexico	www.gmexico.com
Guerrero Exploration Inc	www.grxpl.com
Halcor	www.halcor.gr/
Hambledon Mining	www.hambledon-mining.com
Hansa Resources Ltd	www.hansaresources.com
Harmony Gold Mining Company	www.harmony.co.za
Havila Resources	www.havilah-resources.com.au/
Hes	www.hes.com.tr
Hes Hacilar Elektrik	www.hes.com.tr
Highland Gold Mining Ltd	www.highlandgold.com
Highlands Pacific	www.highlandspacific.com/
Hillgrove Resources	www.hillgroveresources.com.au
Hindustan Copper Ltd. (HCL)	www.hindustancopper.com
HudBay Minerals	www.hudbayminerals.com/
Hutmen	www.hutmen.pl
Iberian Minerals Corp.	www.iberianminerals.com
ICS Copper Systems Ltd	www.icscopper.com
Impala Platinum Ltd.	www.implats.co.za
Imperial Metals	www.imperialmetals.com
Inca Pacific Resources	www.incapacific.com
Independence Group NL	www.independencegroup.com.au
India Resources Ltd	www.indiaresources.com.au
Indophil Resources	www.indophil.com/
Industrias Penoles	www.penoles.com.mx/
Inmet Mining Corp.	www.inmetmining.com/
International Consolidated Minerals Inc	www.icmi-inc.com/
Intrepid Mines	www.intrepidmines.com
Invencture Group	www.invecture.com
Ivanhoe Mines	www.ivanhoe-mines.com
Ivanplats	www.ivanplats.com
Jabiru Metals Ltd.	www.jabirumetals.com.au
Jhagadia Copper Ltd	www.jhagadiacopper.in
Jiangxi Copper Corp.	www.jxcc.com
Jinchuan Non Ferrous Co.	www.jnmc.com.cn
Kagara Ltd	www.kagara.com.au
Karadeniz Bakir Isletmeleri (KBI)	www.kbi.gov.tr
Katanga Mining Ltd	www.katangamining.com
Kazakhmys	www.kazakhmys.com
KazMinCo	www.kazakhmys.kz
Kazzinc Corp	www.kazzinc.com

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Company	Homepage
Kennecott Utah Copper	www.kennecott.com/
Kentor Gold	www.kentorgold.com.au
Kentorgold. Ltd	www.kentorgold.com.au
KGHM Polska Miedz, S.A. (KGHM)	www.polishcopper.com
Kilembe Mines	www.kilembemines.com
Kincora Copper Limited	www.kincoracopper.com
Kiska Metals Corporation	www.kiskametals.com
KM Europa Metal AG (KME)	www.kme.de
Konkola Copper Mines (KCM)	www.kcm.co.zm
Kovohuty Krompachy	www.kovohuty.sk
La Farga	www.la-farga-lacambra.com
La Mancha Resources Inc.	www.lamancha.ca
La Metallo Chimique S.A.	www.metallo.com
Lafayette Mining	www.lafayettemining.com/
Lamitref Metals	www.lamitref.com
Las Bambas (Xstrata project)	www.lasbambas.com.pe
LG-Nikko Co.	www.lg.co.kr/
Lihua International Inc.	www.lihuaintl.com
Lonmin Platinum	www.lonmin.com
Lumina Copper	www.luminacopper.com/
Luoyang Copper Fabricating	www.ly-copper.com
Ma'aden - Saudi Arabian Mining Co	www.maaden.com.sa
Madneuli	www.madneuli.ge
Managem	www.managemgroup.com
Manhattan Minerals Corp.	www.manhattan-min.com
Mansfield Minerals Inc	www.mansfieldminerals.com
Marakand Minerals	www.marakand.co.uk
Marengo mining Ltd	www.marengomining.com
Masan Resources	www.masangroup.com/masanresources
Matrix Metals	www.matrixmetals.com.au
Mawarid Mining	www.natmin.com
Mawson West Limited	www.mawsonwest.com.au
McEwen Mining	www.mcewenmining.com
McEwen Mining Inc.	http://mcewenmining.com
Mercator Minerals	www.mercatorminerals.com
Metallica Resources	www.metal-res.com
Metaloinvest	http://metinvest.com/eng/
Metals X	http://metalsx.com.au/
Metorex (Crew Development Corp.)	www.metorexgroup.com
Mexicana de Cobre S. A.	www.gmexico.com.mx/
Milpo	www.milpo.com.pe
Mindoro Resources Ltd	www.mindoro.com
Minera Andes	www.minandes.com
Minera Chinalco Peru	www.mineratoromocho.com
Minera Corocoro	www.mineracorocoro.com
Minera El Morro	www.mineraelmorro.cl
Minerals and Metals Group (Minmetals)	www.mmgroupltd.com
Mines Management Inc.	www.minesmanagement.com
Minotaur Exploration	www.minotaurexploration.com.au/
Mitsubishi Materials	www.mmc.co.jp
Mitsui Mining & Smelting Co. Ltd.	www.mitsui.co.jp
Mongolyn Alt (MAK)	www.mak.mn/eng
Montana Resources Co.	www.montanaresources.com/

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Company	Homepage
Montanwerke Brixlegg	www.montanwerke-brixlegg.com
Monterrico Metals	www.monterrico.co.uk
Mosquito Consolidated Gold Mines	www.mosquitogold.com
Mustang Minerals Corp.	mustangminerals.com
Mwana Africa Plc	www.mwanaafrica.com
Myanmar Ivanhoe Copper Company Limited (MICCL)	www.miccl.com.mm
Mytilineos Holdings SA	www.web.mytilineos.gr/main.asp
Natasa Mining Ltd	www.natasamining.com
National Iranian Copper Co.	www.nicico.com
National Mining Company LLC	www.natmin.com
Nauru Ocean Resources Inc	http://nauruoceanresources.com/index.html
Nautilus Minerals Inc	www.nautilusminerals.com
New Gold Inc	http://newgold.com/
Newcrest Mining Ltd	www.newcrest.com.au/
Newmont	www.newmont.com/
Newport Exploration Ltd.	www.newport-exploration.com/
Nexvu Capital Corp	www.nexvucapital.com
NGEx Resources Inc	www.ngexresources.com
Nippon Mining & Metals Co. Ltd.	www.nikko-metal.co.jp
Nittetsu Mining	www.nittetsukou.co.jp
Noranda Inc.	www.xstrata.com
Nord Resources	www.nordresources.com
Norilsk G-M	www.nornik.ru
Norsemont Mining Inc.	www.norsemontmining.com
North Atlantic Natural Resources AB (NAN)	www.nanr.se
Northern Dynasty Minerals	www.northerndynastyminerals.com/
Northern Orion	www.northernorion.com/
Northern Peru Copper Corp.	www.northernperu.com
Northgate Minderals	www.northgateminerals.com/
NorthIsle Copper and Gold Inc.	www.northisle.ca
Nortthen Dynasty Minerals	www.northerndynastyminerals.com
Nova Gold Resources Inc.	www.novagold.com
Nubian Resources	www.nubianr.com
Nyrstar	www.nyrstar.com
Oceana Gold	www.oceanagold.com.au
Ok Tedi Mining	www.oktedi.com/
Onahama Smelting and Refining	www.aifis.ne.jp/osr/eng/
Ongopolo Mining and Processing (OMPL)	www.ongopolo.com
Ormonde Mining Plc	www.ormondemining.com
Orsu Metals Corp.	www.lerogold.com
Orvana Minerals Corp.	www.orvana.com
Outokumpu Mining Oy	www.outokumpu.fi
OZ Minerals	www.ozminerals.com
P.T. Freeport Indonesia Co. (PT-FI)	www.ptfi.co.id/
Pachamama Resources Ltd	www.pachamamaresources.com
Pacific Ore Ltd	www.pacificore.com.au
PacMag Metals Ltd	www.pacmag.com.au
Palabora Mining Co. Ltd.	www.palabora.co.za
Pan American Silver Corp	www.panamericansilver.com/
Pan Australian Resources	www.panaust.com.au
Pan Pacific Copper Co	www.ppcu.co.jp
Pancom-Un	http://pancom.odessa.ua/en/about/history.html
Paranapanema S.A.	www.paranapanema.com.br

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Company	Homepage
Park Elektrik	www.parkelektrik.com.tr
PASAR	www.pasar.net.ph
Pasminco	www.pasminco.com.au
Peak Gold Ltd	www.peakgold.com
Pergrine Metals Ltd	www.peregrinemetals.com
Perilya Ltd	www.perilya.com.au
Peru Copper Inc.	www.perucopper.com
Petaquilla Copper Ltd.	www.petaquillacopper.com
Phelps Dodge Corp.	www.phelpsdodge.com
Pilot Gold	www.pilotgold.com
Polymet Mining Corp	www.polymetmining.com
Port Kembla Copper Pty	www.pkc.com.au
Pure Nickel Inc	www.purenickel.com
Quadra Mining Ltd	www.quadramining.com
Rambler Metals and Mining PLC	www.ramblermines.com
Ratel Group	http://ratelgroup.com
Red Hawk Resources	www.redhawkresources.com
Red Tiger Mining	www.redtigermining.com
Redbank Mines Ltd	www.redbankmines.com.au
Redcorp Ventures Ltd	www.redcorp-ventures.com
Redfern Resources	www.redfern.bc.ca
Redhawk Resources	www.redhawkresources.com
Redstone Resources Corp.	http://zoniamine.com/
Regulus Resources Inc.	www.regulusresources.com
Reservoir Minerals	www.reservoirminerals.com
Revett Minerals	www.revettminerals.com
Rex Minerals Ltd	www.rexminerals.com.au
Rey Resources Ltd	www.reyresources.com
Rio Algom	www.rioalgom.com
Rio Narcea Gold Mines	www.rionarcea.com/
Rio Tinto	www.riotinto.com
Riverside Resources Inc.	www.rivres.com
Robust Resources	www.robustresources.com.au
RTB Bor	http://rtb.rs/
Ruashi Mining	www.ruashi.com
Russian Copper Company	www.rmk-group.ru
S.C. Cupru Min S.A. Abrud	www.cuprumin.ro/en/index.htm
Sagittarius Mines, Inc	www.smi.com.ph
Salazar Resources Ltd	www.salazarresources.com
Samsung	www.samsung.com/
Sanfire Resources NL	www.sandfire.com.au
Sarkuysan Electrolytic Copper Ltd.	www.sarkuysan.com
Shalina Resources	www.shalinaresources.com
Shandong Luxiang Copper	www.lxty.com/en/
Siciedad Minera Corona	www.mineracorona.com.pe
Silver Standard	www.silverstandard.com
Simar Spa	www.simarzincorame.com
Simberi Mining Corp.	www.simberimining.com
Sinchao Metals Corp.	www.sinchaometals.com
Sitindustrie SpA	www.sitindustrie.com
Sociedad Mineral El Brocal	www.elbrocal.com.pe
Sociedad Punta del Cobre S.A.	www.pucobre.cl/
Southern Peru Copper Corp.	www.southernperu.com

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List of Company Homepages in the Internet

Company	Homepage
Southwire Co.	www.southwire.com
St. Augustine Gold & Copper Ltd	www.sagcmining.com
Sterling Mining	http://sterling-mining.com/
Stillwather Mining Company	http://stillwatermining.com/
Straits Resources	www.straits.com.au
Sumatra Copper & Gold plc	www.sumatracoppergold.com
Sumitomo Metal Mining Co. Ltd.	www.smm.co.jp
Sun Ridge Gold Corp.	www.sunridgegold.com
Talvivaara	www.talvivaara.com
Tarquin Resources PLC	www.tarquin-resources.com
Taseko Mines Ltd.	www.tasekomines.com/tko/Home.asp
Tati Nickel Mining Co.	www.lionore.com/
TEAL Exploration & Mining Incorporated	www.tealmining.com
Teck	www.teck.com
Terrane Metals Corp.	www.terranemetals.com
Tethyan Copper Comp.	www.tethyan.com/
Thai Copper Industries	www.thaicopperind.com
Themac Resources Group	www.themacresourcesgroup.com
Thompson Creek Metals Company Inc	www.thompsoncreekmetals.com
Tiberon Metals	www.tiberon.com
Tiger Resources Ltd	www.tigerresources.com.au
Tiomin Resources Inc	www.tiomin.com
Tirex Resources Ltd	www.tirexresources.com/
Tongling Nonferrous Metals Group Holdings Co., Ltd	www.tnmg.com.cn/english/
Tosca Mining Corporation	www.toscamining.com
TriAusMin Ltd	www.triausmin.com
TVI Pacific	www.tvipacific.com/
Twin Metals Minnesota	www.twin-metals.com
Tyler Resources	www.tylerresources.com
UCA (Lamitref)	www.lamitref.com/
Umicore	www.umicore.com/en/
Urals Mining and Metallurgical Plant (UMMC)	www.ugmk.com
Vale	www.vale.com
Vale Inco	www.valeinco.com
Vangold Resources Ltd	www.vangold.ca
Vedanta Resources plc	www.vedantaresources.com/
Venturex Resources	www.venturexresources.com
Vietnam National Coal & Mineral Industries Group	www.vinacomin.vn
Volcan Compañia Minera	www.volcan.com.pe
Wanbao Mining Ltd	www.wbmining.com
Weatherly International PLC	www.weatherlyplc.com
Western Metals	www.westernmetals.com.au
Wujin electrolytic copper	www.wjdjt.com
Xstrata	www.xstrata.com/
Yamana Gold Inc.	www.yamana.com
Yukon Zinc Corp.	www.yukonzinc.com
Yunnan Copper Industry Group	www.yunnan-copper.com
Zambezi Resources	www.zambeziresources.com
Zambian Copper Investments (ZCI)	www.zci.lu
Zangazour Copper Molybdenum Combine	www.zcmc.am

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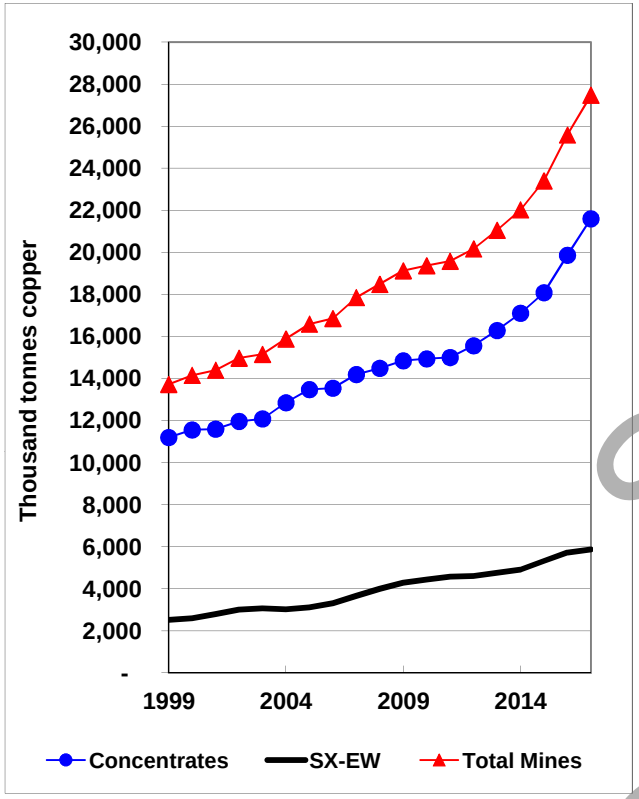
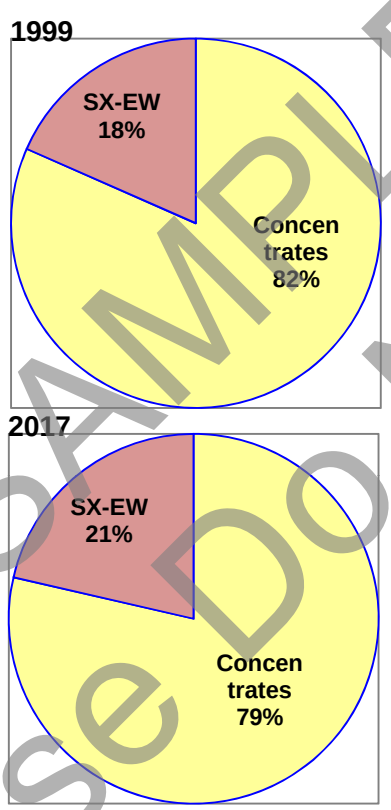
Fig. 1, Trends in Mine Capacities

Thousand metric tonnes copper

Source	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Concentrates	11,198	11,557	11,596	11,963	12,082	12,850	13,476	13,541	14,192	14,487	14,844	14,935	15,002	15,559	16,285	17,106	18,084	19,865	21,598
SX-EW	2,525	2,597	2,802	3,007	3,067	3,031	3,111	3,316	3,660	3,995	4,282	4,433	4,579	4,609	4,766	4,916	5,316	5,717	5,877
Total Mines	**13,723**	**14,154**	**14,398**	**14,970**	**15,149**	**15,881**	**16,587**	**16,857**	**17,851**	**18,481**	**19,126**	**19,368**	**19,581**	**20,167**	**21,050**	**22,021**	**23,399**	**25,581**	**27,474**





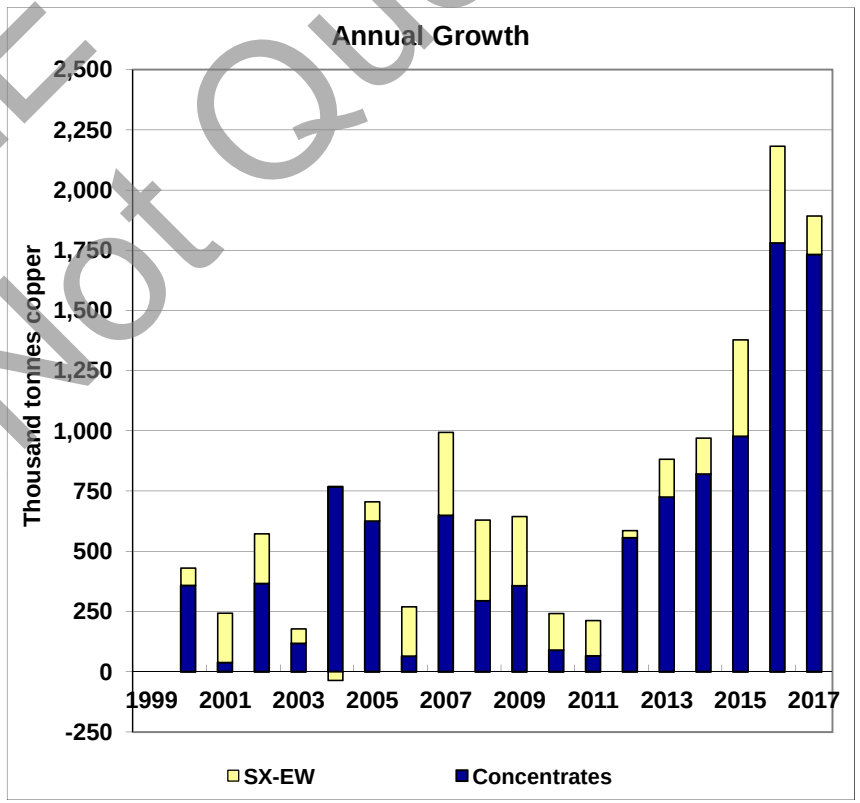


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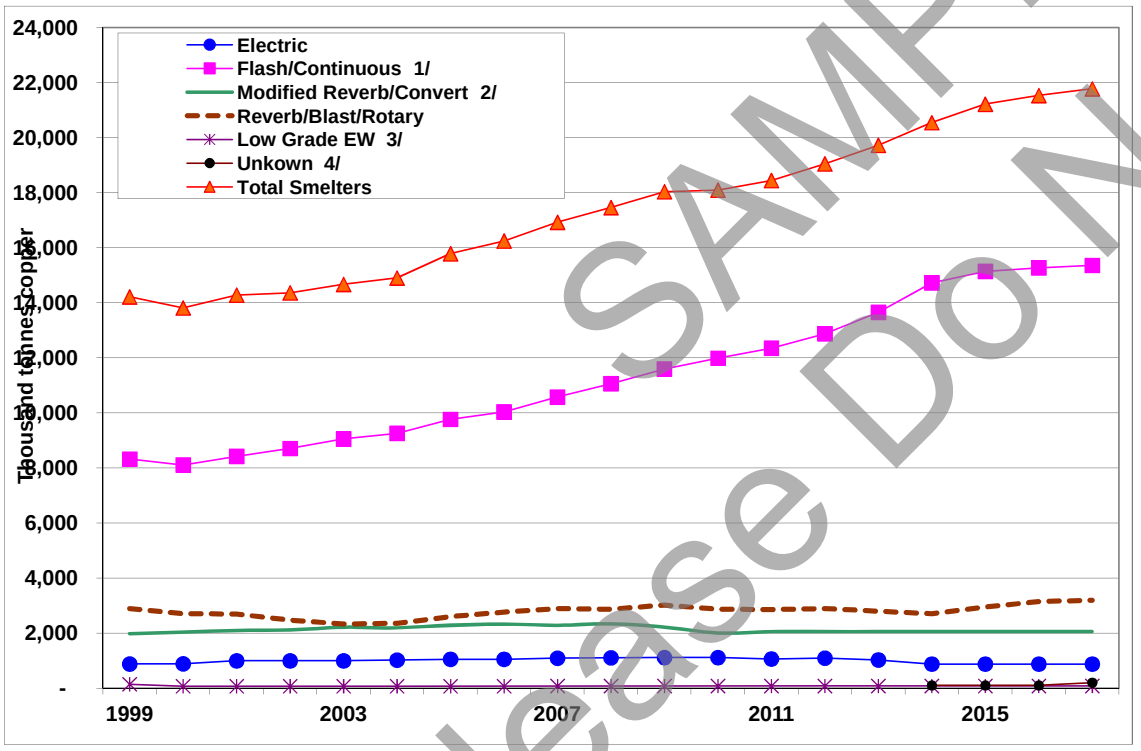
Fig. 2, Trends in Smelter Capacities
Thousand metric tonnes copper

Process	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Electric	881	886	996	996	996	1,022	1,052	1,052	1,092	1,105	1,113	1,113	1,063	1,093	1,028	878	878	878	878
Flash/Continuous 1/	8,323	8,106	8,420	8,707	9,054	9,256	9,765	10,034	10,577	11,060	11,596	11,986	12,351	12,875	13,651	14,720	15,140	15,266	15,356
Modified Reverb/Convert 2/	1,983	2,043	2,098	2,118	2,218	2,192	2,294	2,328	2,286	2,343	2,223	2,008	2,058	2,058	2,058	2,058	2,058	2,058	2,058
Reverb/Blast/Rotary	2,885	2,703	2,692	2,466	2,327	2,357	2,598	2,758	2,890	2,870	3,020	2,870	2,854	2,884	2,802	2,702	2,952	3,142	3,197
Low Grade EW 3/	144	74	74	74	74	74	74	74	80	80	80	80	80	80	80	80	80	80	80
Unkown 4/																103	103	103	203
Total Smelters	**14,215**	**13,812**	**14,280**	**14,361**	**14,669**	**14,901**	**15,783**	**16,246**	**16,925**	**17,458**	**18,032**	**18,092**	**18,441**	**19,045**	**19,722**	**20,541**	**21,211**	**21,527**	**21,772**

1/ Outokumpu, Inco, Noranda, Mitsubishi, Isasmelt, etc. 2/ El Teniente, Oxygen Enriched, etc. 3/ Low grade copper to be re-refined 4/ Information on project process N.A.



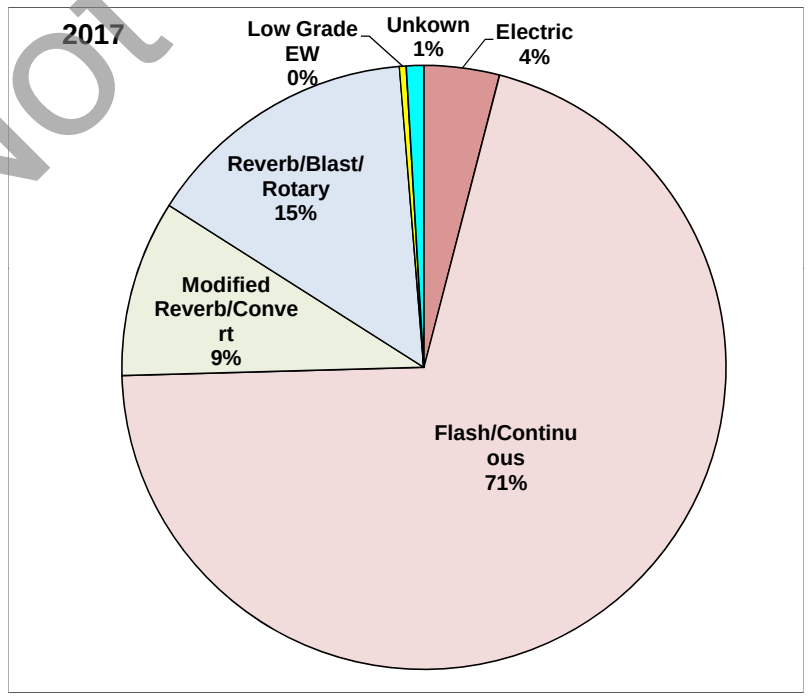


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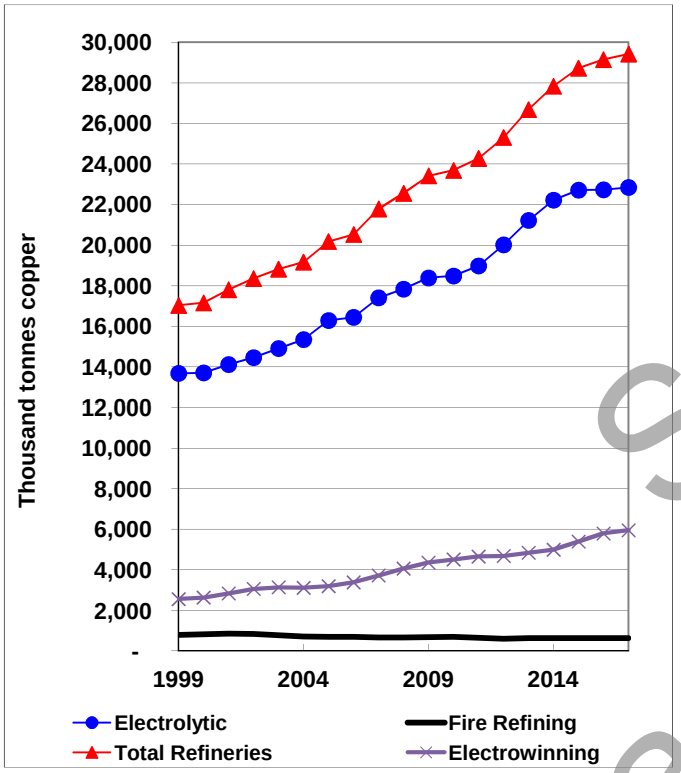
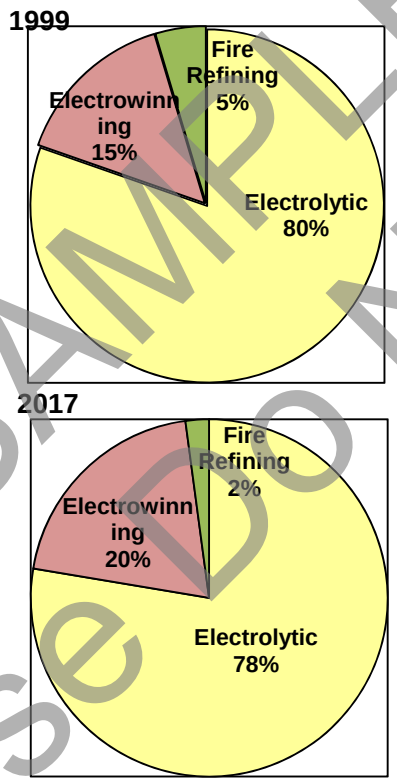
Fig. 3, Trends in Refinery Capacities
Thousand metric tonnes copper

Source	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Electrolytic	13,685	13,710	14,120	14,461	14,911	15,351	16,291	16,445	17,408	17,835	18,388	18,485	18,981	20,021	21,223	22,224	22,714	22,734	22,849
Electrowinning	2,559	2,628	2,839	3,059	3,139	3,116	3,193	3,384	3,717	4,061	4,358	4,509	4,655	4,685	4,842	4,992	5,392	5,793	5,953
Fire Refining	788	819	849	839	774	704	701	701	664	664	673	694	644	604	624	624	624	624	624
Total Refineries	**17,032**	**17,157**	**17,808**	**18,359**	**18,824**	**19,171**	**20,185**	**20,530**	**21,789**	**22,560**	**23,419**	**23,688**	**24,280**	**25,310**	**26,689**	**27,840**	**28,730**	**29,151**	**29,426**





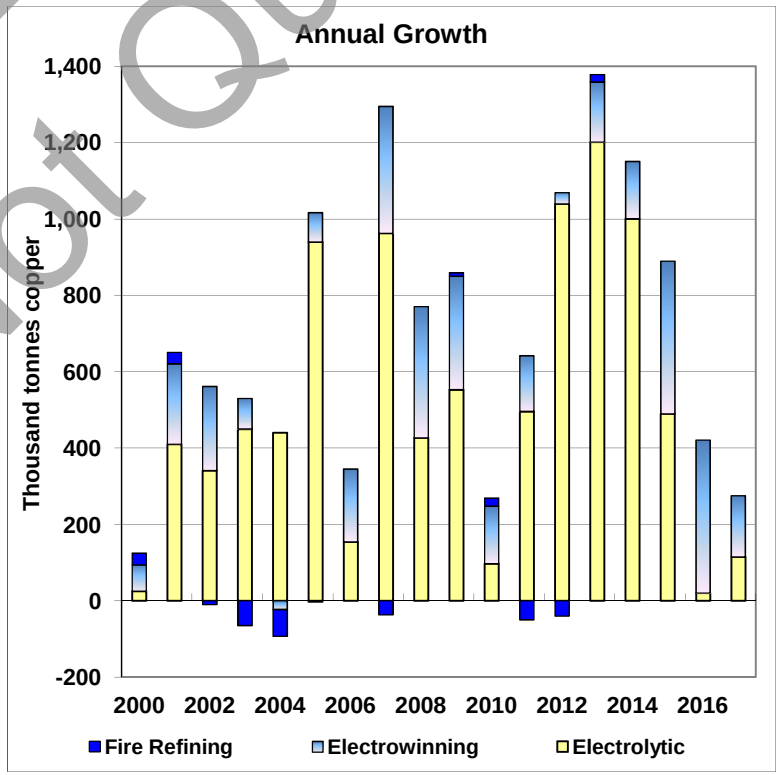


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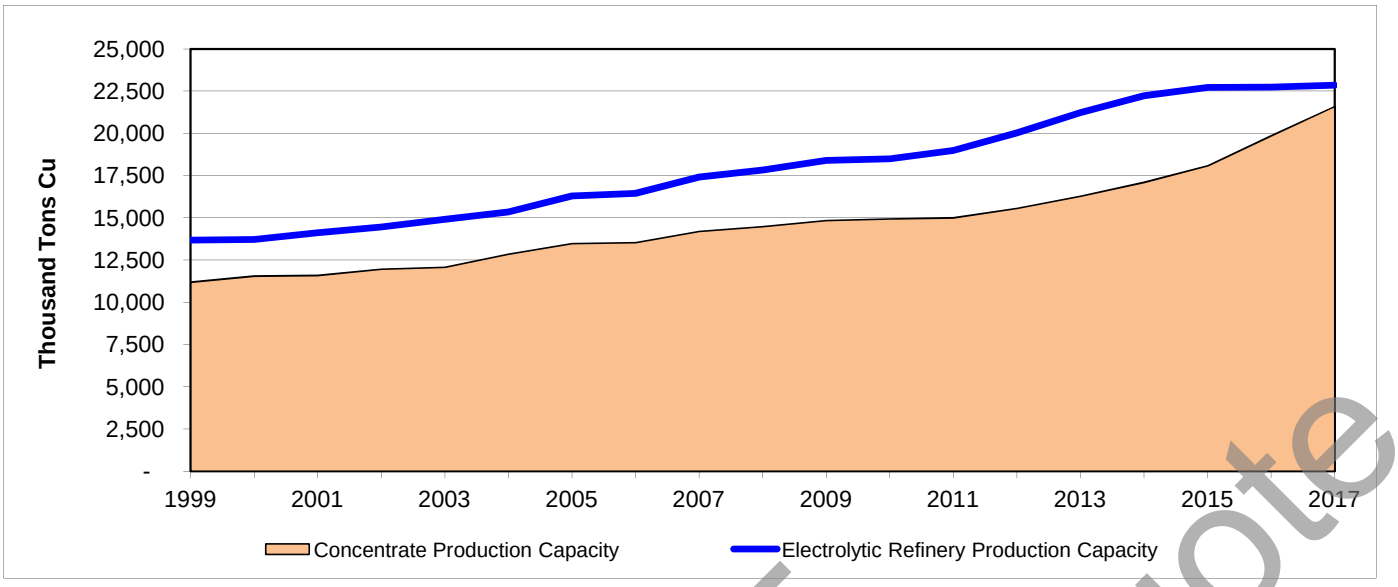
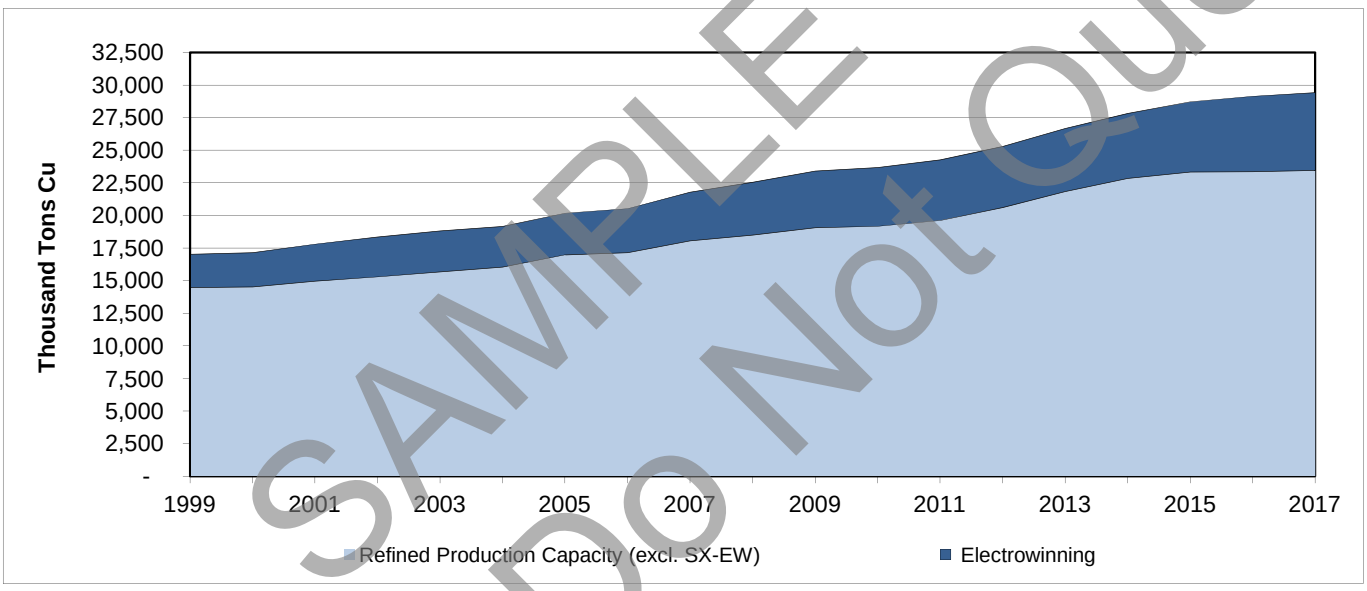
Fig. 4, Trends in Mine and Refined Capacities





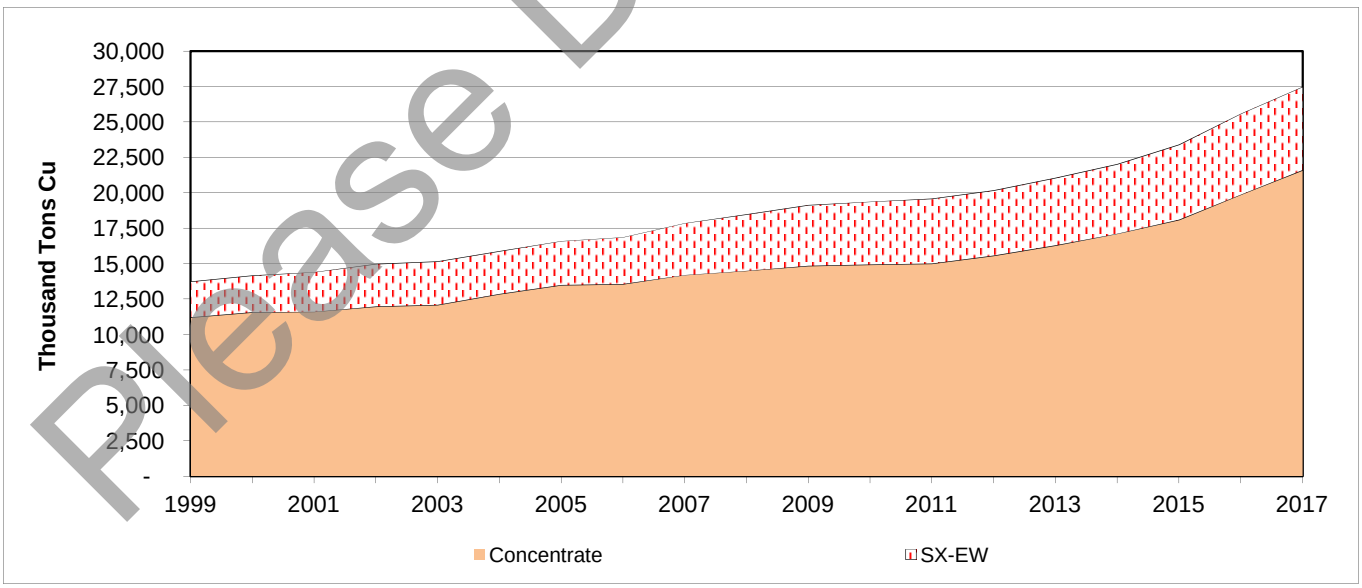


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Table A, Mine Capacities: Country Totals 2003 to 2017
Thousand Metric Tonnes Copper

Country	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Afghanistan															50
Angola															0
Albania															0
Argentina	200	180	175	190	200	170	160	150	140	140	120	120	120	100	100
Armenia	24	28	29	31	38	38	38	38	38	38	38	41	54	64	64
Australia	955	933	985	1,024	1,042	1,092	1,183	1,162	1,145	1,074	1,157	1,174	1,213	1,246	1,328
Azerbaijan								1	1	1	1	1	1	1	1
Bolivia							1	1	5	11	11	11	11	11	11
Botswana	20	29	29	32	32	33	42	42	42	62	70	75	78	63	58
Brazil	30	110	160	167	226	230	240	235	230	240	320	360	445	453	508
Bulgaria	113	113	115	117	117	110	110	110	114	118	118	120	121	121	121
Canada	619	616	628	659	681	680	681	655	630	640	704	765	798	865	973
Chile	4,974	5,420	5,397	5,413	5,744	5,901	5,892	6,042	6,143	6,242	6,293	6,270	6,366	6,665	6,750
China	583	766	819	903	1,037	1,117	1,132	1,214	1,262	1,404	1,437	1,506	1,677	1,716	1,766
Colombia	3	3	3	3	3	3	3	3	3	3	3	3	5	5	5
Congo	89	99	109	139	181	310	492	500	566	670	903	1,096	1,198	1,299	1,309
Cyprus	6	6		2	6	6	6	6	6	6	6	6	6	6	6
Dominican Rep.						3	13	13	13	18	18	33	43	43	40
Ecuador															20
Eritrea											20	90	65	68	56
Finland	15	16	15	15	15	15	15	15	15	28	40	40	39	37	37
Georgia	12	14	14	11	12	12	12	12	12	12	12	12	12	12	12
Greece														2	30
India	36	31	31	34	37	39	42	42	42	42	42	42	42	59	100
Indonesia	1,070	910	1,145	1,050	1,010	1,010	1,012	1,022	1,011	1,040	1,040	1,042	1,070	1,103	1,108
Iran	162	207	238	272	283	294	294	294	294	299	299	369	392	462	527
Israel												2	15	22	22
Kazakhstan	455	485	500	490	544	521	515	505	478	476	481	483	508	640	650
Kyrgyzstan												2	11	14	14
Laos			31	65	65	95	130	135	145	155	155	160	165	170	190
Macedonia	12		5	10	10	10	10	10	11	13	13	13	13	13	13
Mauritania				8	30	35	40	45	45	45	45	45	45	45	45
Mexico	432	441	457	466	538	554	568	565	566	571	576	603	762	1,006	1,037
Mongolia	143	143	143	143	143	143	143	143	143	143	223	313	333	458	538
Morocco	7	7	7	7	8	14	14	13	13	13	16	26	26	26	26
Myanmar	33	33	40	40	40	10	10	10	10	20	25	25	55	140	140
Namibia	33	36	37	21	16	17	15	15	12	13	13	13	20	30	30
North Korea	12	12	12	12	12	12	12	12	13	17	17	22	32	32	32
Oman					9	25	25	25	25	25	25	25	25	25	25
Pakistan	4	15	20	20	20	20	20	20	20	20	20	20	20	20	20
Panama															0
PNG (1)	195	195	200	200	200	190	190	170	150	150	120	110	50	5	170
Peru	964	1,061	1,088	1,077	1,263	1,309	1,315	1,322	1,318	1,340	1,428	1,585	1,814	2,469	3,002
Philippines	22	18	16	23	27	29	53	77	73	79	100	86	83	83	87
Poland	480	480	480	480	480	490	500	445	445	445	445	430	430	430	430
Portugal	79	91	91	86	96	96	91	82	96	81	76	71	71	71	71
Romania	27	27	27	27	27	20	20	20	20	20	20	20	20	20	20
Russia	765	780	776	776	777	778	796	817	817	817	819	866	902	947	968
Saudi Arabia						1	2	2	3	7	10	10	15	52	69
Serbia	58	58	58	58	58	58	58	58	60	63	63	63	63	63	63
South Africa	127	116	110	110	110	110	110	112	104	101	85	82	72	31	32
Spain			6	6	8	11	60	81	108	106	110	110	106	124	154
Sudan														2	25
Sweden	85	90	91	91	85	81	78	86	92	98	104	116	117	118	118
Tanzania	4	4	4	4	4	4	6	8	8	12	25	25	25	25	25
Turkey	70	67	66	77	96	103	103	110	108	108	108	110	113	115	114
United States	1,563	1,545	1,603	1,620	1,572	1,672	1,672	1,708	1,762	1,791	1,787	1,853	1,942	2,012	2,189
Uzbekistan	100	100	110	120	120	120	120	120	120	120	120	120	120	120	120
Venezuela															0
Vietnam	1	1	1	5	11	11	11	11	11	11	13	17	17	17	17
Zambia	562	589	710	748	813	874	1,065	1,078	1,087	1,214	1,351	1,414	1,646	1,828	2,031
Zimbabwe	6	7	7	7	7	7	7	7	7	7	7	7	8	8	8
World Total	**15,149**	**15,881**	**16,587**	**16,857**	**17,851**	**18,481**	**19,126**	**19,368**	**19,581**	**20,167**	**21,050**	**22,021**	**23,399**	**25,581**	**27,474**

(1) PNG: Papua New Guinea

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Table B, Smelter Capacities: Country Totals 2003 to 2017

Thousand Metric Tonnes Copper

Country	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Armenia	10	12	12	12	12	12	12	12	12	12	12	12	12	12	12
Australia	590	625	625	630	640	670	690	690	690	690	690	690	690	640	390
Austria	85	85	85	85	100	110	110	110	110	110	110	110	110	110	110
Belgium	165	165	165	165	161	161	161	161	161	161	161	161	161	161	161
Botswana	26	26	30	30	30	30	30	30	30	30	30	30	30	30	30
Brazil	220	220	220	240	240	240	240	240	240	260	280	280	280	280	280
Bulgaria	210	230	240	245	255	275	280	330	330	330	330	330	330	330	330
Canada	585	561	540	595	595	595	600	420	360	360	360	360	360	360	360
Chile	1,685	1,558	1,570	1,565	1,525	1,712	1,748	1,748	1,798	1,798	1,798	1,798	1,798	1,834	1,834
China	1,676	1,843	2,335	2,585	3,072	3,322	3,712	3,717	4,048	4,512	5,116	6,105	6,605	6,705	6,705
Congo	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63
Finland	160	170	179	187	202	210	210	210	210	210	210	210	210	210	210
Germany	630	630	630	630	630	630	630	630	630	630	630	630	630	630	630
India	428	528	748	898	978	978	978	978	928	948	948	948	948	948	948
Indonesia	220	255	255	260	275	275	275	300	300	300	300	300	300	300	300
Iran	145	185	205	225	225	225	225	225	225	225	225	225	225	350	500
Japan	1,821	1,736	1,774	1,809	1,914	1,954	1,954	1,859	1,858	1,858	1,858	1,858	1,858	1,858	1,858
Kazakhstan	415	435	435	435	435	435	435	435	460	505	440	290	290	290	290
Korea Republic	464	530	530	550	550	540	540	545	545	545	570	570	570	570	570
Mexico	470	370	336	336	336	336	336	301	300	300	300	300	300	300	400
Namibia	30	30	30	30	30	35	35	35	50	50	50	50	50	50	50
North Korea	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80
Oman	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35
Pakistan	2	18	20	20	20	20	20	20	20	20	20	20	20	20	20
Peru	385	385	385	385	430	430	430	430	430	430	430	430	430	430	430
Philippines	230	230	230	250	250	250	250	250	250	250	250	250	250	250	350
Poland	529	579	579	579	609	624	639	659	669	669	669	679	679	684	689
Romania	40	5													
Russia	930	960	970	1,035	1,035	1,035	1,035	1,055	1,085	1,085	1,085	1,095	1,115	1,115	1,115
Serbia	170	170	170	170	170	170	170	170	170	170	170	80	80	80	80
Slovakia	25	25	25	25	35	40	80	80	80	80	80	80	80	80	80
South Africa	148	120	120	120	130	130	130	130	130	130	130	130	130	130	130
Spain	320	320	320	320	320	320	320	320	320	320	320	320	320	320	320
Sweden	240	240	240	240	240	250	250	250	250	250	250	250	250	250	250
Tanzania										5	18	18	18	18	18
Thailand		40	165	165	50										
Turkey	40	40	40	40	40	40	40	40	40	40	40	40	40	40	80
Ukraine	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
United States	900	900	900	710	710	710	710	710	710	710	710	710	710	710	710
Uzbekistan	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115
Vietnam						3	11	11	11	11	11	11	11	11	11
Zambia	364	364	364	364	370	380	435	680	680	730	810	860	1,010	1,110	1,210
Zimbabwe															
World Total	**14,669**	**14,901**	**15,783**	**16,246**	**16,925**	**17,458**	**18,032**	**18,092**	**18,441**	**19,045**	**19,722**	**20,541**	**21,211**	**21,527**	**21,772**

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Table C, Refinery Capacities (incl. electrowon): Country Totals 2003 to 2017
Thousand Metric Tonnes Copper

Country	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Argentina	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
Australia	707	657	676	679	712	742	728	709	733	738	738	738	738	689	441
Austria	80	80	80	80	110	110	110	110	110	110	110	110	110	110	110
Belgium	485	440	425	425	413	408	408	408	408	408	408	408	408	408	408
Bolivia							1	1	3	4	4	4	4	4	4
Brazil	220	220	220	240	241	245	250	250	245	265	285	285	285	280	280
Bulgaria	45	55	65	65	70	150	200	230	230	230	230	230	230	230	230
Canada	654	654	654	535	536	538	528	423	383	383	383	383	383	390	398
Chile	3,009	2,847	2,864	2,827	3,117	3,361	3,583	3,623	3,536	3,340	3,281	3,233	3,212	3,236	3,230
China	2,111	2,420	2,813	3,032	3,747	4,097	4,365	4,607	5,163	6,218	7,298	8,288	8,738	8,738	8,738
Congo	100	100	100	100	91	152	333	426	521	597	739	899	1,078	1,168	1,178
Cyprus	6	6		2	6	6	6	6	6	6	6	6	6	6	6
Egypt	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Finland	141	132	134	137	141	163	163	163	163	163	163	163	163	163	163
Germany	660	675	685	685	685	685	685	705	735	735	735	756	756	756	756
India	428	568	748	898	978	978	978	978	928	948	948	948	948	948	948
Indonesia	220	255	255	260	275	275	277	302	301	300	300	302	310	323	328
Iran	192	194	204	214	224	244	244	254	254	259	259	259	299	372	554
Israel												2	15	22	22
Italy	54	54	54	54	54	54	39	24	24	24	24	24	24	24	24
Japan	1,522	1,542	1,580	1,615	1,726	1,766	1,766	1,719	1,719	1,719	1,706	1,706	1,706	1,706	1,706
Kazakhstan	415	435	435	435	435	435	435	435	460	513	518	520	523	539	542
Korea Republic	514	525	555	605	605	565	590	595	625	625	650	730	730	730	730
Laos			31	65	65	65	65	70	80	90	90	90	90	90	90
Macedonia									1	3	3	3	3	3	3
Mexico	597	536	547	559	627	637	637	637	637	510	495	520	630	681	810
Mongolia	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Myanmar	33	33	40	40	40	10	10	10	10	20	25	25	55	140	140
North Korea	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65
Norway	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40
Oman	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
Peru	542	556	610	600	623	618	618	618	618	572	568	573	618	663	683
Philippines	175	175	185	200	215	215	215	215	215	215	215	215	215	215	302
Poland	525	570	570	570	570	570	580	580	580	580	580	580	580	580	580
Romania	75	45	40	40	40	20	5								
Russia	871	923	974	1,043	1,043	1,043	1,043	1,043	1,043	1,083	1,163	1,163	1,163	1,163	1,161
Serbia	170	170	170	170	170	170	170	170	170	170	170	80	80	80	80
Slovakia	5														
South Africa	177	172	167	168	169	169	169	169	169	169	169	169	169	169	169
Spain	420	394	390	390	390	390	420	440	460	460	460	460	460	460	460
Sweden	240	240	240	240	250	250	250	250	250	250	250	250	250	250	250
Thailand		40	165	165	50										0
Turkey	176	176	176	176	176	154	154	154	189	199	229	229	229	229	229
Ukraine	47	65	65	65	65	65	65	65	65	65	65	65	65	65	65
United States	2,279	2,276	2,275	2,116	2,058	2,136	2,117	2,095	2,049	2,079	2,095	2,089	2,090	2,107	2,136
Uzbekistan	145	145	145	145	145	145	145	145	145	145	145	145	145	145	145
Vietnam						3	11	11	11	11	11	11	11	11	11
Zambia	615	627	679	721	758	758	888	880	873	936	1,003	1,011	1,036	1,073	1,131
Zimbabwe	8	8	8	8	8	7	7	7	7	7	7	7	7	7	7
Total World	**18,824**	**19,171**	**20,185**	**20,530**	**21,789**	**22,560**	**23,419**	**23,688**	**24,280**	**25,310**	**26,689**	**27,840**	**28,730**	**29,151**	**29,426**

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Table D, Electrowinning Capacities: Country Totals 2003 to 2017
Thousand Metric Tonnes Copper

Country	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Argentina															0
Australia	97	47	56	59	62	72	58	39	63	68	68	68	68	69	71
Belgium	20	40	40	40	28	28	28	28	28	28	28	28	28	28	28
Bolivia							1	1	3	4	4	4	4	4	4
Brazil					1	5	10	10	5	5	5	5	5		0
Canada	9	9	9	10	11	13	13	13	13	13	13	13	13	20	28
Chile	1,668	1,646	1,625	1,707	1,961	2,186	2,273	2,303	2,306	2,180	2,121	2,073	2,052	2,076	2,070
China	45	50	53	60	65	65	68	98	103	123	123	123	123	123	123
Congo					26	87	269	361	456	532	674	834	1,013	1,103	1,113
Cyprus	6	6		2	6	6	6	6	6	6	6	6	6	6	6
Finland	15	8	10	10	10	10	10	10	10	10	10	10	10	10	10
Indonesia							2	2	1			2	10	23	28
Iran	12	14	14	14	14	14	14	14	14	19	19	19	19	22	24
Israel												2	15	22	22
Kazakhstan										8	13	15	18	34	37
Laos			31	65	65	65	65	70	80	90	90	90	90	90	90
Macedonia									1	3	3	3	3	3	3
Mexico	87	86	97	109	177	187	187	187	187	190	195	220	330	381	410
Mongolia	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Myanmar	33	33	40	40	40	10	10	10	10	20	25	25	55	140	140
Namibia												7	17	17	
Peru	182	196	190	180	183	178	178	178	178	132	128	133	178	223	243
Philippines															2
Russia	3	15	16	20	20	20	20	20	20	20	20	20	20	20	18
South Africa	30	25	20	21	22	22	22	22	22	22	22	22	22	22	22
Spain							30	50	70	70	70	70	70	70	70
United States	751	748	747	760	702	780	761	762	761	761	757	751	752	769	798
Zambia	170	182	234	276	313	303	323	315	308	371	438	446	471	508	566
Zimbabwe	8	8	8	8	8	7	7	7	7	7	7	7	7	7	7
Total World	**3,139**	**3,116**	**3,193**	**3,384**	**3,717**	**4,061**	**4,358**	**4,509**	**4,655**	**4,685**	**4,842**	**4,992**	**5,392**	**5,793**	**5,953**

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Figure 5: Projected Cu Mine Production Capacity in New Producing Countries (countries currently not yet producing copper)

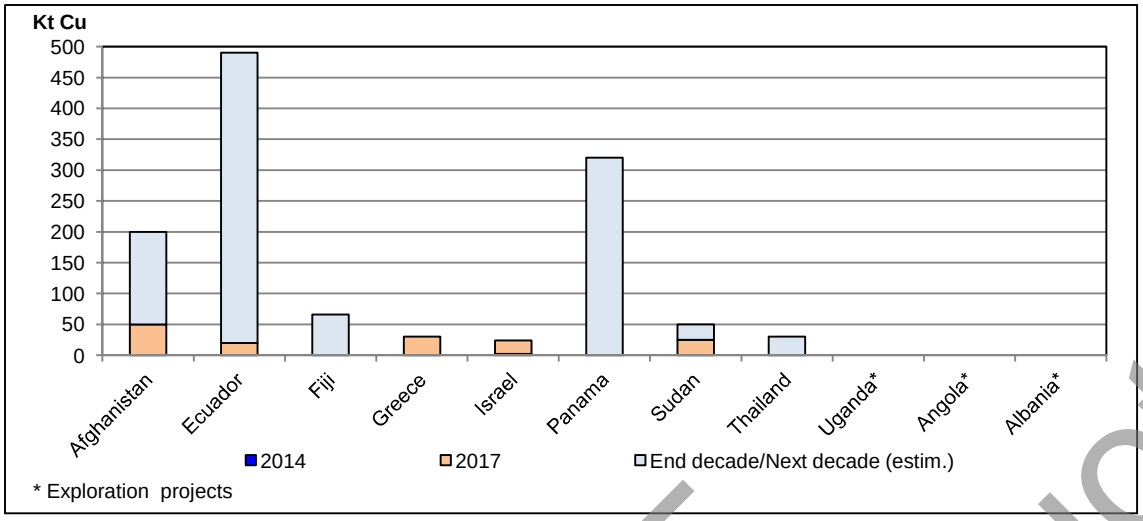

Figure 6: Projected Cu Mine Production Capacity at Countries that Started Copper Mining in the Last 10 years

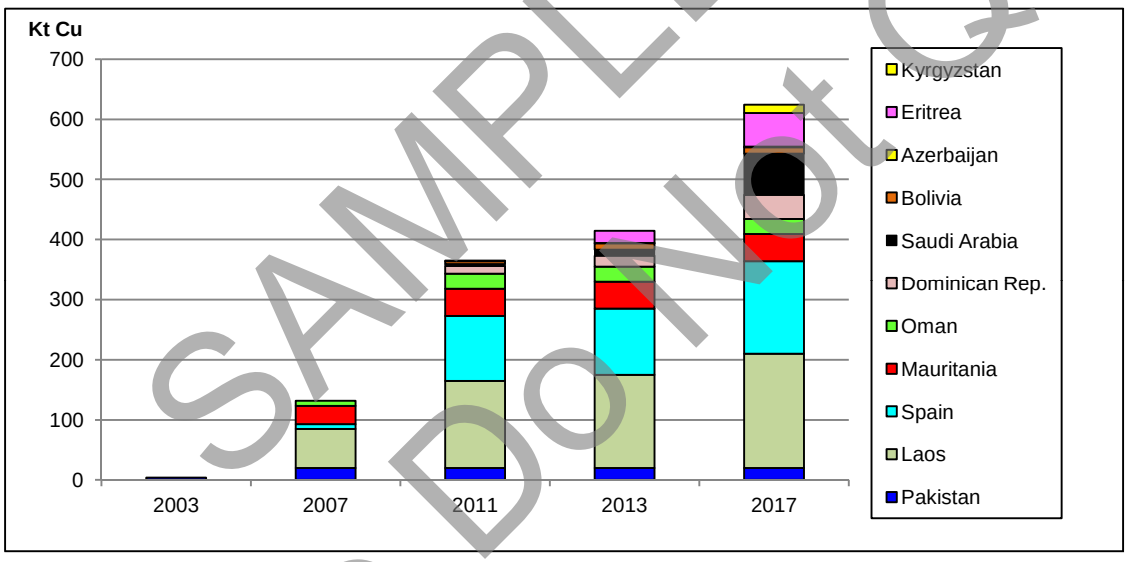

Figure 7: Projected Cu Mine Production Capacity at Countries that were/are Producing at Low/medium Levels

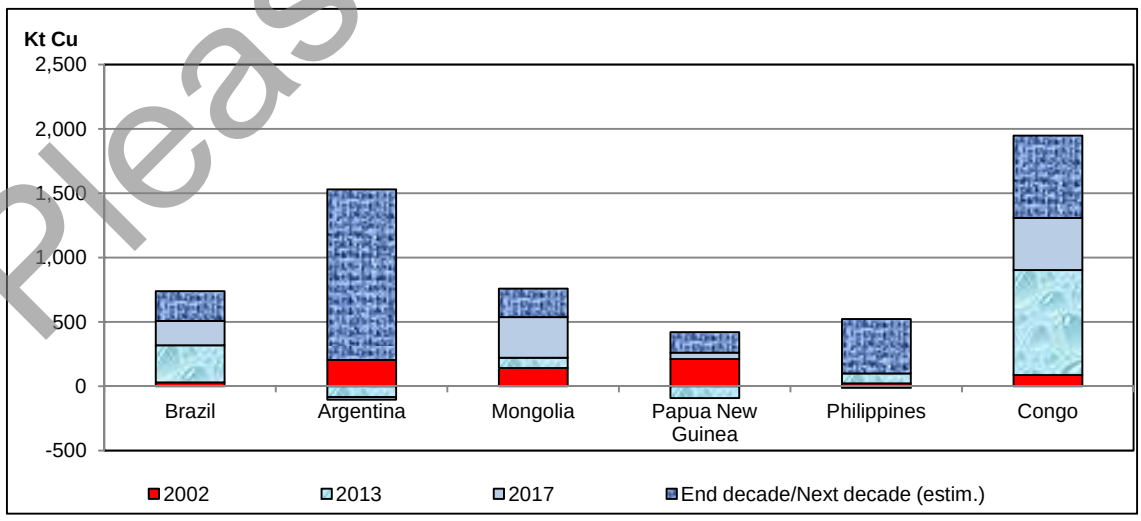

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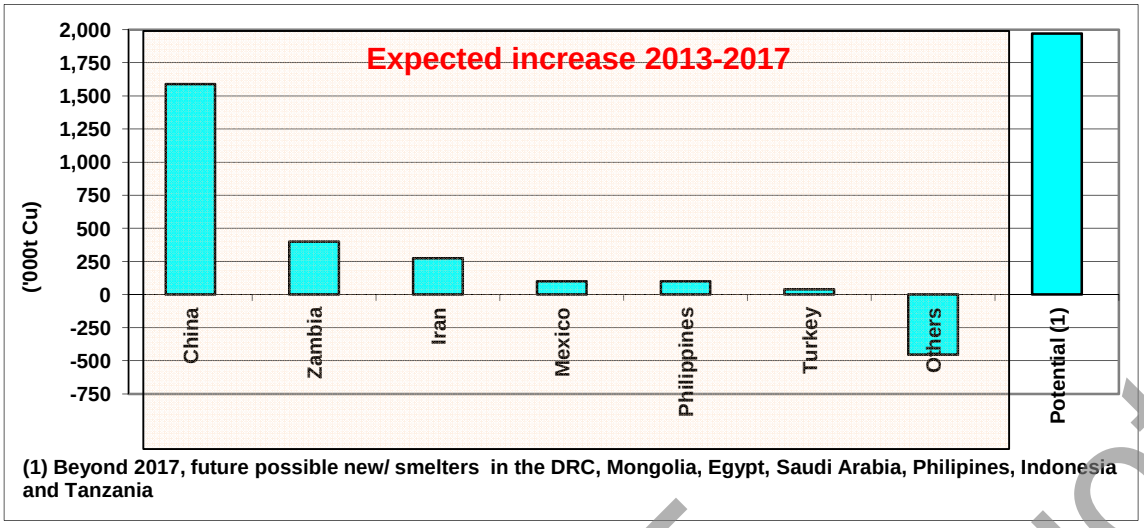
Figure 8: Projected Copper Smelter Production Capacity Increase by Country



(1) Beyond 2017, future possible new/ smelters in the DRC, Mongolia, Egypt, Saudi Arabia, Philipines, Indonesia and Tanzania

Figure 9: Projected World Copper Refined Capacity Increase by Country - 2013/2017

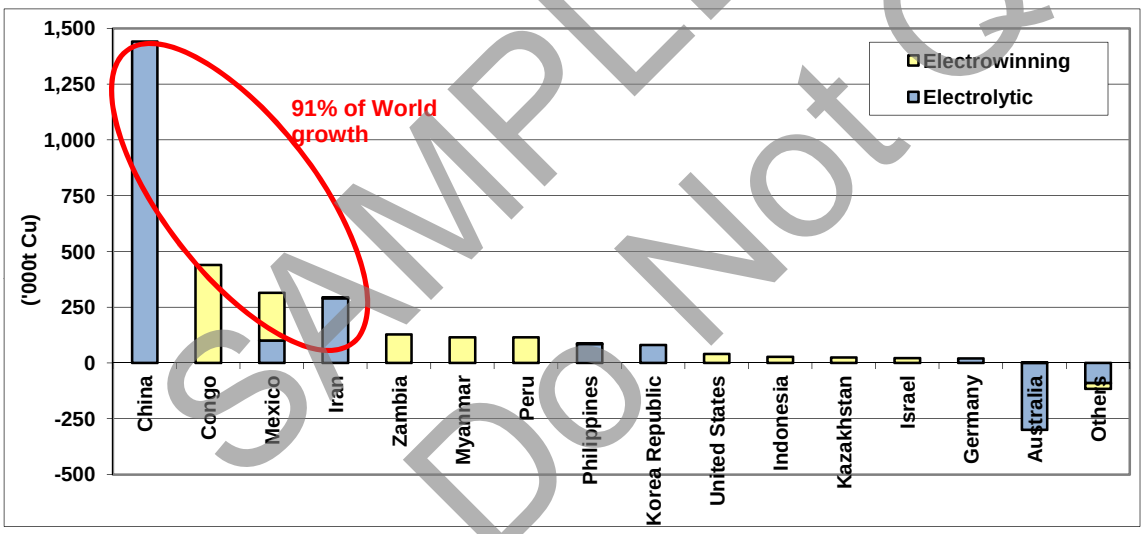
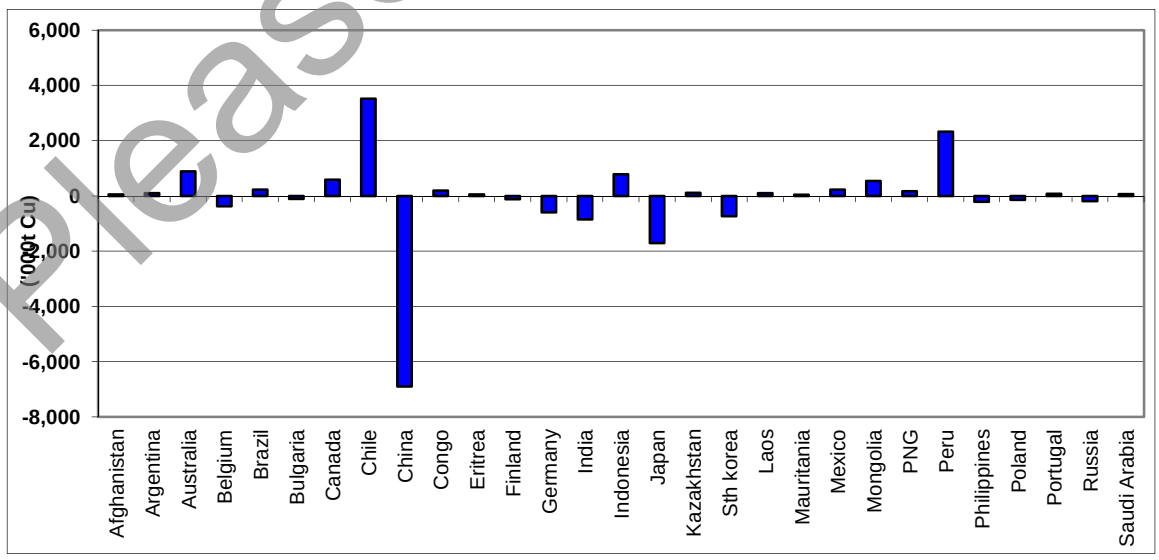


Figure 10: Country Concentrate Balance by 2017* (Concentrate vs Electrolytic Refinery Production Capacity)



*Aproximate balance as Electrolytic Refinery cpapacity includes secondary production capacity (from scrap)

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TABLE E: MINE CLOSURES (2003-2014)

Thousand metric tonnes copper

Country	Mine	Owner (s)	Process	Date of Startup	Date of Closure	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
South Africa	Maranda	Metorex	Concentrates	1991	2004	1										
Canada	Les Mines Selbaie (A1)	Billiton Metals Canada	Concentrates	1986	2004	1										
South Africa	O Okiep	Metorex	SX-EW	2002	2004	5										
Canada	Bell Allard	Xstrata plc	Concentrates	1999	2004	6										
China	Pucheng	Local Government	Concentrates	1972	2005	1	1									
Canada	Bouchard-Hebert (Mobrun)	Breakwater Resources	Concentrates	1987	2005	4	1									
Turkey	Cakmakkaya (Murgul)	K.B.I.	Concentrates		2005	8	1									
Zambia	Chibuluma West	Metorex 85%, ZCCM 15%	Concentrates	1955	2005	5	3									
Canada	Louvicourt	Teck Resources Ltd, Novicourt	Concentrates	1994	2005	35	17									
Kazakhstan	Itauz	Kazakhmys PLC	Concentrates	1998	2005	40	40									
China	Dayao	Yunan Copper	Concentrates	1976	2006	8	8	8								
China	Zheyaoshan	Baiyin Nonferrous Metals Co.	Concentrates	1991	2007	1	1	1	1							
Namibia	Kombat West	Grove Export CC	Concentrates	1905	2007	7	7	1	1							
China	Mayang	Local Government	Concentrates	1996	2007	2	2	2	2							
China	Zheyaoshan-Xitiaoshan	Baiyin Non Ferrous Metals Co.	Concentrates		2007	4	4	4	4							
Sweden	Storliden	Lundin Mining Corp.	Concentrates	2002	2008	14	13	13	7	3						
Zambia	Fitwaola	Konkola Copper Mines (Vedanta 51%, Zambia Copper Investments Ltd. (ZCI) 28.4%, ZCCM 20.6%)	SX-EW	2005	2008		5	20	20	10						
Kazakhstan	Kosmurum	Kazakhmys PLC	Concentrates	2006	2008			5	10	10						
Chile	Montecristo	Nova Ventura	Concentrates	2004	2008	10	4	2	1	10						
Canada	Montcalm	Glencore plc	Concentrates	2005	2009	3	3	3	3	3						
Congo	Lupoto	TEAL (50% African Rainbow, 50% Vale)	Concentrates	2007	2009				2	5	3					
Australia	Nifty	Aditya Birla Minerals	SX-EW	1993		28	28	25	15	10	5					
Australia	Whim Creek	Venturex Resources	SX-EW	2005	2009		9	15	15	15	10					
Canada	Troilus	First Quantum Minerals Ltd	Concentrates	1988	2010	5	5	4	4	4	4	4				
Brazil	UHC	Vale	SX-EW	2008	2010					1	5	5				
Congo	Lonshi	First Quantum Minerals Ltd	SX-EW	2001	2010	45	50	50	30	10	10	7				
Canada	Kemess South	Aurico Gold Inc	Concentrates	1998	2011	33	37	40	35	30	25	20	5			
Congo	Kinsevere Phase 1	Minmetals	Concentrates	2007	2011				15	28	20	20	7			
Chile	Ivan/Zar	Compania Minera Milpo	SX-EW	1995	2013	10	9	11	10	10	10	5	4	4	1	
Canada	Perseverance	Glencore plc	Concentrates	2008	2013					2	8	10	10	10	3	
Canada	Brunswick No.12	Glencore plc	Concentrates	1964	2013	8	8	8	9	9	9	9	9	9	4	
Peru	Tintaya	Glencore plc	SX-EW	1985	2013	40	40	40	40	35	35	35	35	9	5	
Peru	Tintaya	Glencore plc	Concentrates	1985	2013	90	90	85	85	85	85	85	60	38	10	
Philippines	Rapu Rapu	LG International and Korean Resources Corp. (70%), Malaysian Smelting Corp. (25%)	Concentrates	2006	2013			1	5	5	7	10	10	10	10	
Chile	Sierra Miranda	Sierra Miranda	SX-EW	2007	2013				4	6	1	12	12	6	5	
Australia	Reward/Highway (Thalanga)	Kagara Ltd	Concentrates	1998	2013	20	15	5	15	25	25	25	25	25	25	
Philippines	Canatuan	TVI Pacific	Concentrates	2008	2014						4	10	8	7	5	1

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TABLE F: MINES IN DEVELOPMENT

Thousand metric tonnes copper

Country	Mine	Owner (s)	Start Up	Process	2014	2015	2016	2017	Cap.*
Afghanistan	Aynak	Jiangxi Copper 25%, China Metallurgical Group Corp. (MCC) 75%	2017	Concentrates				50	200
Argentina	Pascua-Lama (Argentina)	Barrick Gold Corp.		Concentrates	(See Chile)				
Armenia	Teghout	Armenian Copper Program	2014	Concentrates	5	20	30	30	30
Australia	Woodlawn	TriaAusMin Ltd	1979, 2015	Concentrates		2	4	4	4
Australia	Pilbara	Venturex Resources	2015	Concentrates		5	20	20	20
Australia	Mungana	Kagara Ltd.		Concentrates				0	
Brazil	Boa Esperança	Mineração Caraiba SA (Glencore plc 28.5%)	2016	Concentrates			5	25	25
Canada	Red Chris	Imperial Metals Corp. and Jiangxi Copper Mining Co. (joint venture)	2014	Concentrates	5	30	40	40	40
Canada	Tulsequah Chief	Chieftain Metals Corp.	2016	Concentrates			2	9	9
Chile	Antucoya	Antofagasta Plc 70%, Marubeni Corporation 30%	2015	SX-EW		30	85	85	85
Chile	Pascua-Lama (Chile)	Barrick Gold Corp.		Concentrates				2	12
Chile	Berta	Coro Mining Corp.	2015	SX-EW		1	5	7	7
China	Xietongmen	Jinchuan Group Ltd. (JNMC)	2014	Concentrates	20	56	56	56	56
China	Yanxi	Tongxing Mining (Daye 80%)	2014	Concentrates	1	5	5	5	5
China	Sareke	Daye	2014	Concentrates	5	9	9	9	9
China	Dishui	Zhaojin Mining	2014	Concentrates	3	9	9	9	9
China	Shaxi	Tongling Non Ferrous Metals	2015	Concentrates		5	16	16	16
Congo	Kolwezi Tailings	Eurasian Natural Resources Corporation PLC 70%, DRC Government, Gécamines and Sociéte Immobiliére du Congo 30%.	2014	SX-EW	30	70	70	70	70
Congo	Kinsenda	Metorex (Jinchuan Group) 75%, SODIMICO 20%, Forrest Group 5%	2015	Concentrates		5	26	26	26
Congo	Kapulo	Mawson West Limited (90%), Dikulushi-Kapulo Community Foundation NPO (10%)	2014	Concentrates	2	15	20	20	20
Congo	Mabende	Sino-Metals Leach Zambia Ltd 60%, Congo Huachin 40%	2014	SX-EW	10	20	20	20	20
Ecuador	Mirador	Corriente Resources Inc (Tongling Nonferrous Metals Group Holdings Co., Ltd. and China Railway Construction Corp.Ltd)	2017	Concentrates				20	60
Greece	Skouries	Eldorado Gold Corp.	2016	Concentrates			2	30	30
Iran	Darehzar & Nouchoon Copper Concentrators	National Iranian Copper Industry Co.	2016	Concentrates			20	47	47
Iran	Chehel Korreh	National Iranian Copper Industry Co.	2015	Concentrates		3	3	3	4
Iran	Taft Copper Complex	National Iranian Copper Industry Co.	2016	Concentrates			15	26	26
Iran	Dar Alou Copper Complex	National Iranian Copper Industry Co.	2016	Concentrates			13	26	26
Iran	Nicico other SX-EW mines	National Iranian Copper Industry Co.	2016	SX-EW			3	5	8
Israel	Arava Mines	AHMSA Steel Israel Ltd (Altos Hornos de Mexico)	2014	SX-EW	2	15	22	22	22
Kazakhstan	Aktogay	Kazakhmys PLC	2017	Concentrates				20	90
Kazakhstan	Aktogay SX-EW	Kazakhmys PLC	2015	SX-EW		1	15	15	15
Kazakhstan	Bozhakol	Kazakhmys PLC	2015	Concentrates		20	100	100	100
Kyrgyzstan	Andash	Robust Resources Ltd 80%, Kyrgyztan Geophysical Expedition 20%	2015	Concentrates		4	7	7	7.4
Mexico	El Pilar	Mercator Minerals	2016	SX-EW			10	39	39
Mexico	Boleo	Baja Mining Corp 49%, Korea Resources Group 51%	2014	SX-EW	10	40	56	56	56
Mexico	Angangeo	Grupo Mexico	2015	Concentrates		2	10	10	10
Mongolia	Tsagaan Suvarga	Mongolyn Alt (MAK)	2015	Concentrates		20	75	75	75
Myanmar	Letpadaung	Wanbao Mining Copper Co.(China North Industries Corp. - Norinco holds 60%)	2015	SX-EW		25	100	100	100
Namibia	Tschudi	Weatherly Mining Namibia (Weatherly International Plc 97%)	2015	SX-EW		7	17	17	17
Panama	Cobre Panama	First Quantum Minerals Ltd 80%, Korea Panama Mining Corp. (LS-Nikko Copper Inc. and Korean Resources Corporation) 20%	2018	Concentrates					320
Peru	Las Bambas	Glencore plc	2015	Concentrates		30	300	400	400
Peru	Mina Justa	Marcobre (Minsur 70%, Korean partners 30%)	2014 / 2015	Concentrates		20	60	60	60
Peru	Mina Justa	Marcobre (Minsur 70%, Korean partners 30%)	2014 / 2015	SX-EW	10	50	50	50	50
Peru	Tia Maria	Southern Copper Corp. (Grupo Mexico)	2017	SX-EW				20	120
Peru	Constancia	HudBay Minerals Inc.	2015	Concentrates		50	118	118	118
Peru	Pachapaqui	Korea Zinc Co		Concentrates				0	4
Russia	Podolskoe	Bashkyr Copper	2014	Concentrates	2	10	10	10	10
Saudi Arabia	Jabal Sayid	Barrick Gold Corp. 70%. Alujain Corp. 30%,	2015	Concentrates		5	40	53	53
Spain	Rio Tinto Mines	EMED Mining	1970, 2016	Concentrates			10	37	37
Turkey	Çopler	Alacer Gold 80%, Lydia Maden İşletmeleş 20%	2014	Concentrates	2	5	7	6	6
Turkey	Cerattepe	First Quantum Minerals Ltd		Concentrates				0	20
United States	Northmet Project	Polymet Mining Corp.	2017	Concentrates				20	32
United States	Idaho Cobalt Project	Formation Capital Corp.	2016	SX-EW			1	2	2
United States	Chloride Copper Mine (Emerald Isle)	Sierra Resources Group Inc	2016	SX-EW			1	4	4

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TABLE F: MINES IN DEVELOPMENT

Thousand metric tonnes copper

Country	Mine	Owner (s)	Start Up	Process	2014	2015	2016	2017	Cap.*
United States	Liberty (formerly Hall-Tonapah)	General Moly	1989, 2016	Concentrates			2	6	6
United States	Pumpkin Hollow	Nevada Copper Corp.	2016	Concentrates			40	124	124
Zambia	Ichimpe	Zhonghui Mining Group	2014	SX-EW	2	25	35	35	35
Zambia	Kakoso	Sino-Metals Leach Zambia Ltd 88%, Shenzen Resources Ltd 12%	2014	SX-EW	1	3	3	3	3
Zambia	Chingola Refractory Ore (CRO)	Konkola Copper Mines (Vedanta 51%, Zambia Copper Investments Ltd. (ZCI) 28.4%, ZCCM 20.6%)	2016	SX-EW			25	50	50
Zambia	Kangaluwi-Chisawa Project	Zambezi Resources, Ltd	2016	SX-EW			2	35	35
Zambia	Mkushi	Elephant Copper Ltd 51%, African Eagle Resources 49%	2015	Concentrates		4	20	20	20
Zambia	Mwambashi	Sino-Metal Leach Zambia Ltd (China Nonferrous Metals Mining Corp. 55%)	2014	Concentrates	2	2	2	2	2
Zambia	Sentinel	First Quantum Minerals Ltd	2014	Concentrates	10	150	250	300	300
				Total Concentrates	57	486	1346	1841	2468
				Total SX-EW	65	287	520	635	738
				Total Mine	122	773	1866	2476	3206
				Additional capacity per year (currently developping mines)	122	651	1093	610	

* Expected production capacity

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TABLE G: PLANNED MINES (1)

Thousand metric tonnes copper

Country	Mine	Status	Process	Owner (s)	Startup (2)	Cap (2)
Afghanistan	Shaida	Exploration	Unkown Mine	Afghan Minerals Group		
Afghanistan	Balkhab	Exploration	Unkown Mine	Turkish-Afghan Mining		
Afghanistan	Zarkashan	Exploration	Unkown Mine	Sterling Mining 50%, Belhasa International Co. 50%		
Albania	Mirdita	Feasibility	Concentrates	Tirex Resources Ltd		
Angola	Mavoio-Tetelo-Bembe	Exploration	Unkown Mine	Hansa Resources Ltd		
Angola	Cachoeiras de Binga	Exploration	Unkown Mine	Cityview Corporation Ltd. (Fortitude Minerals Ltd)		
Angola	Cassenha Hill	Exploration	Unkown Mine	Sable Minerals Ltd 70%, Discovery Group 30%		
Angola	Menongue	Feasibility	Concentrates	Geomineira		
Argentina	Los Azules	Feasibility	SX-EW	McEwen Mining Inc.		255
Argentina	San Jorge	Feasibility	SX-EW	Coro Mining Corp.		24
Argentina	Rio Grande	Exploration	Unkown Mine	Regulus Resources Inc.		
Argentina	Taca Taca	Feasibility	Concentrates	Lumina Copper Corp.		271
Argentina	Arizaro	Exploration	Unkown Mine	Goldrock Mines Corp.		
Argentina	Catua	Exploration	Unkown Mine	Regulus Resources Inc.		
Argentina	El Camino	Exploration	Unkown Mine	Regulus Resources Ltd		
Argentina	Josemaria	Exploration	Concentrates	NGEx Resources Inc 60%, JOGMEG 40%		
Argentina	Purulla	Exploration	Unkown Mine	Golden Arrow Resources		
Argentina	Mogote	Exploration	Unkown Mine	Golden Arrow Resources		
Argentina	El Pachon	Feasibility	Concentrates	Glencore plc	2019	400
Argentina	Agua Rica	Feasibility	Concentrates	Yamana Gold Inc	2019	250
Argentina	Altar	Feasibility	Concentrates	Stillwater Mining Company		127
Armenia	Armanis	Exploration	Unkown Mine	Metal Prince Ltd.		
Armenia	Hankavan	Exploration	Unkown Mine	Global Gold Corp.		
Australia	White Range Project	Feasibility	SX-EW	Queensland Mining Corporation Limited		15
Australia	Little Eva (Roseby)	Feasibility	Concentrates	Altona Mining Ltd	2017	39
Australia	Mutooroo	Feasibility	Concentrates	Havilah Resources NL		12
Australia	Mutooroo	Feasibility	Unkown Mine	Havilah Resources NL		
Australia	Copper Hill project	Feasibility	Concentrates	Golden Cross Resources Ltd		36
Australia	Copper Hill project	Feasibility	Unkown Mine	Golden Cross Resources Ltd		
Australia	Cloncurry Copper Project	Exploration	Concentrates	Chinalco Yunnan Copper Resources Ltd		
Australia	Kalkaroo	Feasibility	Concentrates	Havilah Resources NL		44
Australia	Whundo	Feasibility	Concentrates	Fox Resources Ltd		
Australia	McCabe	Exploration	Unkown Mine	Xstrata plc & Matrix Metals Ltd. (joint venture)		
Australia	Ruth Well	Exploration	Unkown Mine	Fox Resources Ltd.		
Australia	Carrapateena	Feasibility	Concentrates	OZ Minerals Ltd	2021	105
Australia	Benambra	Exploration	Unkown Mine	Independence Group NL		
Australia	Mount Kelly	Exploration	Unkown Mine	CopperCo Ltd.		
Australia	Maitland	Exploration	Unkown Mine	Kagara Ltd.		
Australia	Alford	Exploration	Unkown Mine	Argonaut Resources		
Australia	Mt Torrens	Exploration	Unkown Mine	Argonaut Resources		
Australia	Benagerie	Feasibility	Unkown Mine	Havilah Resources NA		
Australia	Anthill	Exploration	Unkown Mine	CopperCo ltd		
Australia	Elaine (Mt Isa)	Exploration	Unkown Mine	Chinalco Yunnan Copper Resources Ltd 70%, Goldsearch Limited 30%		
Australia	Hillside	Feasibility	Concentrates	Rex Minerals Ltd	2016	75
Australia	Jervois	Feasibility	Concentrates	Kentor Gold Resources	2017	20
Botswana	Selkirk	Feasibility	Concentrates	Tati Nickel Mining Co. (Norilsk 85%, 15% Gov.)		20
Brazil	Alemão	Feasibility	Concentrates	Vale (67%), BNDES (33%)		64
Brazil	Cristalino	Feasibility	Concentrates	Vale (50%), BNDES (50%)		90
Brazil	Cristalino	Feasibility	Unkown Mine	Vale (50%), BNDES (50%)		
Brazil	118 Project	Feasibility	SX-EW	Vale (50%), BNDES (50%)		40
Brazil	Igarape Bahia Phase IV	Feasibility	Concentrates	Vale 67%, BNDES 33%		36
Brazil	Igarape Bahia Phase IV	Feasibility	Unkown Mine	Vale 67%, BNDES 33%		
Brazil	Serrote da Laje	Feasibility	Concentrates	Aura Minerals Inc	2016	30
Canada	KSM (Kerr-Sulphurets-Mitchell)	Feasibility	Concentrates	Seabridge Gold Inc		88
Canada	Shaft Creek	Feasibility	Concentrates	Teck Resources Ltd 75%, Copper Fox 25%	2020	124
Canada	Marathon	Feasibility	Concentrates	Still water Mining Company 75%, Mitsubishi Corp. 25%		17
Canada	Maskwa	Feasibility	Concentrates	Mustang Minerals Corp.		
Canada	Maskwa	Feasibility	Unkown Mine	Mustang Minerals Corp.		
Canada	Kutcho	Feasibility	Concentrates	Capstone Mining Corp.	2016	16
Canada	Carmacks	Feasibility	SX-EW	Copper North Mining Corp.	2016	15
Canada	Casino	Feasibility	Concentrates	Western Copper Corp.	2019	100
Canada	Hushamu (Island Copper)	Feasibility	Concentrates	NorthIsle Copper and Gold Inc.		
Canada	Redstone	Exploration	Concentrates	Copper North Mining Corp.		
Canada	Bear Copper	Exploration	Unkown Mine	Imperial Metals Corp.		
Canada	Fond du Lac	Exploration	Unkown Mine	Pure Nickel Inc		
Canada	Afton Ajax	Feasibility	Concentrates	KGHM 80%, Abacus Mining & Exploration Corp 20%.	1978, 2015	50
Canada	Prosperity (Fish Lake)	Feasibility	Concentrates	Taseko Mines Ltd.	2016	45
Canada	Galore Creek	Feasibility	Concentrates	Teck Resources Ltd 50%, Nova Gold Resources 50%		200
Canada	Giant Copper	Exploration	Unkown Mine	Imperial Metals Corp.		
Canada	Izok Lake	Feasibility	Concentrates	Minmetals		50
Canada	Victoria	Feasibility	Concentrates	KGHM Polzka Miedz S.A.	2023	
Canada	Granduc (project)	Feasibility	Concentrates	Castle Resources Inc.		40
Canada	Clipperton (offshore)	Feasibility	SX-EW	DeepGreen Resources Inc.	2020	50
Chile	Diego de Almagro SX-EW	Feasibility	SX-EW	Can-Can (Copec Group)	2017	11
Chile	Diego de Almagro	Feasibility	Concentrates	Can-Can (Copec Group)	2015	22
Chile	Caspiche	Feasibility	Concentrates	Exeter Resources	2017	110
Chile	Los Helados	Feasibility	Concentrates	NGEx Resources Inc 60%, Pan Pacific 40%		
Chile	El Morro	Feasibility	Concentrates	Goldcorp 70%, New Gold Inc. 30%	2019	130
Chile	Cerro Casale	Feasibility	Concentrates	Barrick Gold Corp. (75%), Kinross Gold Corp. (25%)	2020	110

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TABLE G: PLANNED MINES (1)

Thousand metric tonnes copper

Country	Mine	Status	Process	Owner (s)	Startup (2)	Cap (2)
Chile	Hidro Norte	Exploration	Unkown Mine	Codelco		
Chile	Cristal	Exploration	Unkown Mine	Condor Resources Inc.		
Chile	Cristal	Feasibility	Unkown Mine	Condor Resources Inc.		
Chile	Gloria	Exploration	Unkown Mine	Coro Mining Corp.		
Chile	Cerro Chacay	Exploration	Unkown Mine	Coro Mining Corp.		
Chile	Andrea	Exploration	Unkown Mine	NGEx Resources		
Chile	Brahma	Exploration	Unkown Mine	Condor Resources Inc		
Chile	Corona	Exploration	Unkown Mine	Condor Resources Inc		
Chile	Puquios	Feasibility	SX-EW	Minera Las Pascualas		15
Chile	Radomiro Tomic (Sulphides)	Feasibility	Concentrates	Codelco	2019	343
Chile	Lomas Bayas	Feasibility	Concentrates	Glencore plc	1998	65
Chile	El Espino	Feasibility	SX-EW	Sociedad Punta del Cobre (Pucobre) 51%, Explorator Resources 49%	2018	40
Chile	El Relincho	Feasibility	Concentrates	Teck Resources Ltd	2019	207
Chile	Vizcachitas	Feasibility	Concentrates	Los Andes Copper		178
Chile	Payen	Exploration	Unkown Mine	Coro Mining Corp.		
Chile	Filipina Grande	Exploration	Unkown Mine	Tamaya Resources		
Chile	Santo Domingo	Feasibility	Concentrates	Capstone Mining Corp. 70%, Korea Resources Corporation 30%	2018	110
Chile	Humito	Exploration	Unkown Mine	China Yunnan Copper Australia Limited		
Chile	Inca de Oro	Feasibility	Concentrates	PanAust 66%, Codelco 34%	2020	50
Chile	West Wall	Exploration	Unkown Mine	Glencore plc 50%, Anglo American 50%		
Chile	Los Sulfatos	Exploration	Unkown Mine	Anglo American		
China	Qulong	Feasibility	Concentrates	Tibet Julong Copper Co.	2017	120
Congo	Kamoa	Feasibility	Concentrates	Ivanhoe Mines Ltd 95%, DRC government 5%	2018	313
Congo	Deziwa & Ecaille C	Feasibility	SX-EW	Gecamines		200
Congo	Kakanda Project	Feasibility	SX-EW	Greenrock Resources. (51%), Gecamines (49%)		30
Congo	Lubembe	Feasibility	Unkown Mine	Metorex (Jinchuan Group) 75%, SODIMICO 20%, Forrest Group 5%		
Congo	Kimpe	Feasibility	Unkown Mine	KGHM		100
Congo	Kibamba	Exploration	Unkown Mine	First Quantum Minerals Ltd		
Congo	Kasala	Exploration	Unkown Mine	El Niño Ventures, 70%		
Congo	467 & 469 (C19 & C21)	Exploration	Unkown Mine	CAMEC (ENRC)		
Congo	Musonoi/Sokoroshi	Exploration	Unkown Mine	Metorex (Jinchuan Group)		
Congo	Kisenge	Exploration	Unkown Mine	Gold Fields		
Congo	Pumpi & Kamasani	Feasibility	Concentrates	Managem		5
Congo	Kipushi Zn/Cu mine	Feasibility	Concentrates	Ivanhoe Mines Ltd 68%, Gecamines 32%	1924	
Congo	Kalumines	Feasibility	Concentrates	Gecamines		40
Congo	Kileba	Exploration	SX-EW	Tiger Resources Ltd		
Congo	Musoshi (project)	Exploration	Unkown Mine	Metorex (Jinchuan Group) 75%, SODIMICO 20%, Forrest Group 5%		
Congo	Kangeshi	Exploration	Unkown Mine	Black Fire Minerals Ltd 54%		
Congo	Kansuki	Feasibility	SX-EW	Glencore plc (54.5% indirect interest), High Grade Minerals S.A. 14.5%, Rowny Assets Ltd (Fleurette Properties Ltd) 31%		
Congo	Kalukundi	Exploration	Unkown Mine	Swanmines (Africo 75% (63.7% ENRC), Gecamines 25%)		
Ecuador	Panantza	Feasibility	Concentrates	Corriente Resources Inc (Tongling Nonferrous Metals Group Holdings Co., Ltd. and China Railway Construction Corp.Ltd)		180
Ecuador	Junin	Exploration	Unkown Mine	Empresa Nacional Minera (Enami EP)		150
Ecuador	Telimbela	Exploration	Unkown Mine	Empresa Nacional Minera (Enami EP)		
Ecuador	Chaucha	Exploration	Unkown Mine	Empresa Nacional Minera (Enami EP)		100
Eritrea	Asmara	Feasibility	Concentrates	Sunridge Gold Corp. 70%, ENAMCO 30%	2015	29
Eritrea	Hambok	Exploration	Unkown Mine	Nevsun Resources Ltd		
Fiji	Namosi	Feasibility	Concentrates	Newcrest Mining Ltd 70%, Nittetsu Mining Co Ltd (2%), Mitsubishi Materials Corp (28%)		66
Finland	Haukiaho	Exploration	Unkown Mine	Altona Mining Ltd		
Haiti	La Mine & Treuil Projects	Exploration	Unkown Mine	Eurasian Minerals Inc.		
Iran	Kahang Copper Complex	Feasibility	Concentrates	National Iranian Copper Industry Co.		11
Iran	Chah Firozeh and Ijue Copper Plant	Feasibility	Concentrates	National Iranian Copper Industry Co.		13
Iran	Masjid Daghi Copper Complex	Feasibility	Concentrates	National Iranian Copper Industry Co.		2.5
Iran	Haft Cheshme Copper Complex	Feasibility	Concentrates	National Iranian Copper Industry Co.		
Kazakhstan	Koksay	Feasibility	Concentrates	Kazakhmys PLC		80
Kazakhstan	Karchiga	Feasibility	Concentrates	Orsu Metals Corp. (94.75%)	2015	38
Kazakhstan	Karchiga SX-EW	Feasibility	SX-EW	Orsu Metals Corp. (94.75%)	2018	13
Kyrgystan	Talas	Feasibility	Concentrates	Robust Resources Ltd		26
Kyrgyzstan	Bekbulaktor (Bashkol)	Exploration	Concentrates	Kentor Gold 80%, Kyrgyztan Geophysical Expedition 20%		
Laos	Jiuzhai	Exploration	Unkown Mine	Chinalco Yunnan Copper Resources Ltd		
Laos	Luang Namtha	Exploration	Unkown Mine	Amanta Resources Ltd		
Laos	Phonsavan	Feasibility	Concentrates	PanAust Ltd (19.9% Guangdong Rising Assets Management)	2015	
Laos	Pha Nai	Exploration	Unkown Mine	PanAust Ltd (19.9% Guangdong Rising Assets Management)		
Mexico	El Salvador/ San Nicolas	Feasibility	Concentrates	Teck Resources Ltd		
Mexico	Opata	Exploration	Unkown Mine	JABA Inc.		
Mexico	Buena Vista	Exploration	Unkown Mine	Grupo Mexico		
Mexico	San Javier (Cerro Verde area)	Feasibility	SX-EW	Constellation Copper Corp.		22
Mexico	Suaqui Verde	Exploration	Unkown Mine	Everim Resources		

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TABLE G: PLANNED MINES (1)

Thousand metric tonnes copper

Country	Mine	Status	Process	Owner (s)	Startup (2)	Cap (2)
Mexico	La Balsa	Feasibility	SX-EW	Binhai Harbour Group HK Co., Limited		10
Mexico	Terrazas (Cerro Verdo area)	Feasibility	SX-EW	Constellation Copper Corp.		
Mexico	El Arco	Feasibility	Unkown Mine	Grupo Mexico		190
Mexico	Bahuerachi	Feasibility	Concentrates	Canada Jinchuan Resources Ltd		83
Mexico	La Verde	Feasibility	Concentrates	Catalyst Copper Corp. 60%, Teck Resources Ltd 40%		96
Mexico	Carol	Exploration	Unkown Mine	Alta Vista Ventures Ltd		
Mongolia	Timur	Exploration	Unkown Mine	Marc Rich Investment (51%)		
Mongolia	Erdenetin-Ovoo SX-EW	Feasibility	SX-EW	Samsung 51%, Erdenet 49%		
Mongolia	Alag Bayan	Exploration	Unkown Mine	Central Asia Metals Plc		
Mongolia	Bronze Fox	Exploration	Unkown Mine	Kincora Copper Limited		
Morocco	Bou Skour	Feasibility	Concentrates	Managem	1958	
Namibia	Tsumeb Tailing	Feasibility	Unkown Mine	Weatherly Mining Namibia (Weatherly International Plc 97%)		
Namibia	Haib	Feasibility	SX-EW	Teck Resources Ltd, Afri-can Marine Minerals Corp.		
Oman	Daris	Feasibility	Concentrates	Alara 50%, Al Tamman Trading Establishment LLC 50%		
Oman	Washihi	Feasibility	Concentrates	Alara 70%, Al Hadeetha Investments LLC 30%		
Pakistan	Reko Diq	Feasibility	Concentrates	Tethyan Copper Comp 75% (Barrick Gold Corp 50%, Antofagasta 50%), Baluchistan Dev. Authority 25%		200
Panama	Cerro-Colorado	Exploration	Unkown Mine	CODEMIN		
Papua New Guinea	Yandera	Feasibility	Concentrates	Marengo Mining Ltd	2016	125
Papua New Guinea	Solwara 1 Project	Feasibility	Concentrates	Nautilus Minerals Inc (Anglo American 11%, Teck Cominco 6.8%, Epion Holidngs 21%)	2017	80
Papua New Guinea	Wafi Golpu	Feasibility	Concentrates	Harmony Gold Mining Company 50%, Newcrest Mining 50%	2025	250
Papua New Guinea	Wafi Golpu	Feasibility	Unkown Mine	Harmony Gold Mining Company 50%, Newcrest Mining 50%	2025	
Papua New Guinea	Frieda River	Feasibility	Concentrates	Glencore plc 81.82%, Highlands Pacific 18.18%	2020	100
Peru	Rio Blanco	Feasibility	Concentrates	Monterrico Metals plc (Zijin 45%, Tongling 35%, Xiamen C&D 20%)	2017	190
Peru	Magistral	Feasibility	Concentrates	Compañia Minera Milpo		35
Peru	Los Chancas	Feasibility	Concentrates	Southern Copper Corp (Grupo Mexico)	2018	100
Peru	Conga	Feasibility	Concentrates	Newmont 51.35%, Compania de Minas Buenaventura 43.65%, International Financial Corp 5%	2016	118
Peru	Pukaqaqa	Exploration	Unkown Mine	Tiomin Resources Inc. 49%, Compañia Minera Milpo 51%		
Peru	Hilarión	Feasibility	Concentrates	Compañia Minera Milpo		
Peru	Puy Puy	Exploration	Unkown Mine	Volcan Compañia Minera		
Peru	Cañariaco	Feasibility	Concentrates	Candente Copper Corp	2018	120
Peru	El Galeno	Feasibility	Concentrates	Northern Peru Copper Corp (Minmetals, Jiangxi Copper)	2017	200
Peru	La Huaca	Exploration	Unkown Mine	Cadente Copper Corp.		
Peru	Alto Dorado	Exploration	Unkown Mine	Candente Resources Corp		
Peru	Lunahuana	Exploration	SX-EW	Cadente Copper Corp.		
Peru	Picota	Exploration	Unkown Mine	Candente Resources Corp		
Peru	Ocros	Exploration	Unkown Mine	Condor Resources Inc		
Peru	Coroccohuayco	Feasibility	SX-EW	Glencore plc	2015	50
Peru	Berenguela	Exploration	Unkown Mine	Silver Standard		
Peru	La Granja	Feasibility	SX-EW	Peruvian Government (Rio Tinto is exploring the project)	2019	300
Peru	Michiquillay	Feasibility	Concentrates	Anglo American (100%)		155
Peru	Pashpap	Exploration	Unkown Mine	Northern Peru Copper Corp (Minmetals, Jiangxi Copper)		
Peru	Quechua	Feasibility	Concentrates	Pan Pacific Copper Co Ltd		80
Peru	Quellaveco	Feasibility	Concentrates	Anglo American 81.9%, Mitsubishi Corp. 18.1%	2019	225
Peru	Tambogrande	Exploration	Unkown Mine	Manhattan Minerals		
Peru	Haquira	Exploration	Concentrates	First Quantum Minerals		190
Peru	Cristo de Los Andes	Exploration	Unkown Mine	Antares Minerals		
Peru	Sinchao	Exploration	Unkown Mine	Southern Legacy Minerals		
Peru	Invicta	Feasibility	Concentrates	Lupaka Gold		
Peru	Zafranal	Feasibility	Concentrates	AQM Copper Inc. (40% Mitsubishi Materials Corp.) 50%, Teck Resources 50%		54
Philippines	King King	Feasibility	Concentrates	St Augustine Gold & Copper Ltd	2018	52
Philippines	King King SX-EW	Feasibility	SX-EW	St Augustine Gold & Copper Ltd	2017	70
Philippines	Batangas/Surigao	Exploration	Unkown Mine	Mindoro Resources Ltd		
Philippines	Tampakan	Feasibility	Concentrates	Glencore plc 62.5%, Indophil Resources NL 37.5%	2019	375
Philippines	Hinoba-An	Feasibility	Concentrates	Copper Development Corp.		48
Philippines	Boyongan	Feasibility	Concentrates	Philex Mining Corp.	2017	48
Philippines	Boyongan	Feasibility	Unkown Mine	Philex Mining Corp.	2017	
Russia	Udokan	Feasibility	SX-EW	Metalloinvest	2020	450
Russia	Novoshaitaisky	Feasibility	Unkown Mine	Kirovgrad		
Russia	Tominskoye (Chelyabinsk project)	Feasibility	Concentrates	Russian Copper Company	2015	63
Russia	Ak-Sug	Feasibility	Concentrates	Intergeo (Onexim Group)	2018	100
Russia	Kingash	Feasibility	Concentrates	Intergeo MMC Ltd (Onexim Group)	2021	15
Russia	Levikhinskaya	Exploration	Unkown Mine	OOO Levinsky GOK		
Russia	Fedorova	Feasibility	Concentrates	Barrick Gold Corp 50%, Highland Gold 50%		
Russia	Bystrinskoe & Bugdainskoe	Feasibility	Concentrates	Norilsk Nickel	2017	66

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TABLE G: PLANNED MINES (1)

Thousand metric tonnes copper

Country	Mine	Status	Process	Owner (s)	Startup (2)	Cap (2)
Saudi Arabia	Khnaiguiyah	Feasibility	Concentrates	Alara Resources 50%, United Arabian Mining Company (Manajem) 50%	2016	6
Serbia	Timok Project	Exploration	Concentrates	Rakita d.o.o., (Freeport-McMoRan Copper & Gold Inc. 55%, Reservoir Minerals 45%)		
South Africa	Platreef	Exploration	Concentrates	Ivanhoe Mines 90%, Japanese consortium (Itochu Corporation; JOGMEC; JGC Corporation) 10%		
South Africa	Rooipoort	Exploration	Concentrates	Caledonia Mining Corp.		
Spain	La Zarza	Feasibility	Concentrates	Ormonde Mining	2018	12
Sudan	Hassai	Feasibility	Concentrates	Ariab Mining Company (La Mancha Resources Inc., 40%)	2016	50
Sweden	Laver	Exploration	Unkown Mine	Boliden Mineral AB		
Thailand	Puthep	Feasibility	SX-EW	PanAust Ltd 51%, Padaeng Industry Co. 49%		30
Turkey	Halilaga	Feasibility	Concentrates	Teck 60%, PilotGold Inc 40%		
Turkey	Hazine Magara (Gümüshane)	Feasibility	Concentrates	Gumustas Madencilik ve Ticaret A.S.		
Uganda	Kilembe	Exploration	Concentrates	Vangold Resources Ltd		
United States	Copper Creek	Exploration	Unkown Mine	Redhawk Resources Inc.		
United States	Resolution	Feasibility	Concentrates	Rio Tinto (55%), BHP Billiton (45%)	2027	500
United States	Rosemont	Feasibility	Concentrates	Augusta Resource Corp.	2018	116
United States	MAN Alaska	Exploration	Unkown Mine	Pure Nickel Inc		
United States	Nokomis	Feasibility	SX-EW	Twin Metals Minnesota ltd (JV Duluth Metals Ltd 60%, Antofagasta Plc 40%)		82
United States	Ann Mason	Feasibility	Concentrates	Entrée Gold Inc		97
United States	Copper Flat	Feasibility	Concentrates	THEMAC Resources Group Limited	2016	23
United States	Florence	Feasibility	SX-EW	Curis Resources Ltd	2016	35
United States	Montanore (Noxon)	Exploration	Unkown Mine	Mines Management, Inc. (2002)		23
United States	Pebble	Feasibility	Concentrates	Northern Dynasty Minerals	2023	300
United States	Rock Creek Project	Feasibility	Concentrates	Revett Minerals Inc.		24
United States	Van Dyke	Exploration	SX-EW	Copper Fox Metals Inc.		
United States	White Pine	Feasibility	Concentrates	Highland Copper Company	1954	
United States	Zonia	Feasibility	SX-EW	Redstone Resources Corp	2016	16
United States	Pine Tree	Exploration	Unkown Mine	IEMR Resources Inc.		
United States	Cumo	Feasibility	Concentrates	American CuMo Mining Corp.		20
United States	Copper Chief	Exploration	Unkown Mine	American CuMo Mining Corp.		
United States	Satellite	Exploration	Unkown Mine	Copper Mesa Mining Corp		
United States	Malachite	Exploration	Unkown Mine	Copper Mesa Mining Corp.		
United States	Copperwood	Feasibility	Concentrates	Highland Copper Inc.	2016	28
United States	Whistler	Exploration	Unkown Mine	Kiska Metals Corp.		
United States	Palmer	Exploration	Concentrates	Constantine Metal Resources		
Uzbekistan	Khandiza	Feasibility	Concentrates	Marakand Minerals (Oxus Gold Plc)		6
Venezuela	Las Cristinas	Feasibility	Concentrates	Crystallex International Corporation		
Venezuela	Brisas	Feasibility	Concentrates	Gold Reserve Inc.		29
Vietnam	Nui Phao	Feasibility	Unkown Mine	Masan Resources 70%, Thai Nguyen Mineral Comp. 30%	2013	
Zambia	Nama	Exploration	Unkown Mine	Caledonia Mining Corp.		
Zambia	Luanshya	Feasibility	Unkown Mine	Puku Minerals (Weatherly International)	1931	
Zambia	Kitumba	Feasibility	Concentrates	Blackthorn Resources		40
Zambia	Cheowa Project	Exploration	Unkown Mine	Zambezi Resources Ltd 49%, Glencore plc 51%		
Zambia	Mashiba	Feasibility	SX-EW	Luanshya Copper Mines (80% China Nonferrous Metals Mining Co, 20% ZCCM Investment Holdings)		6
Zambia	Kashime	Feasibility	Unkown Mine	First Quantum Minerals Ltd		
Zambia	Mokambo	Feasibility	Concentrates	Nubian Resources (80%)		
Zambia	Ndola	Exploration	Unkown Mine	Macrolink Group		
				Total of selected mines above		**11,359**

Notes: **(1) Mines currently at the feasibility or exploration status. For mines under feasibility or exploration status and plants under planned**
(2) Expected production capacity level and startup data

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FIGURE 11: MAJOR COPPER MINE PROJECTS

Thousand metric tonnes

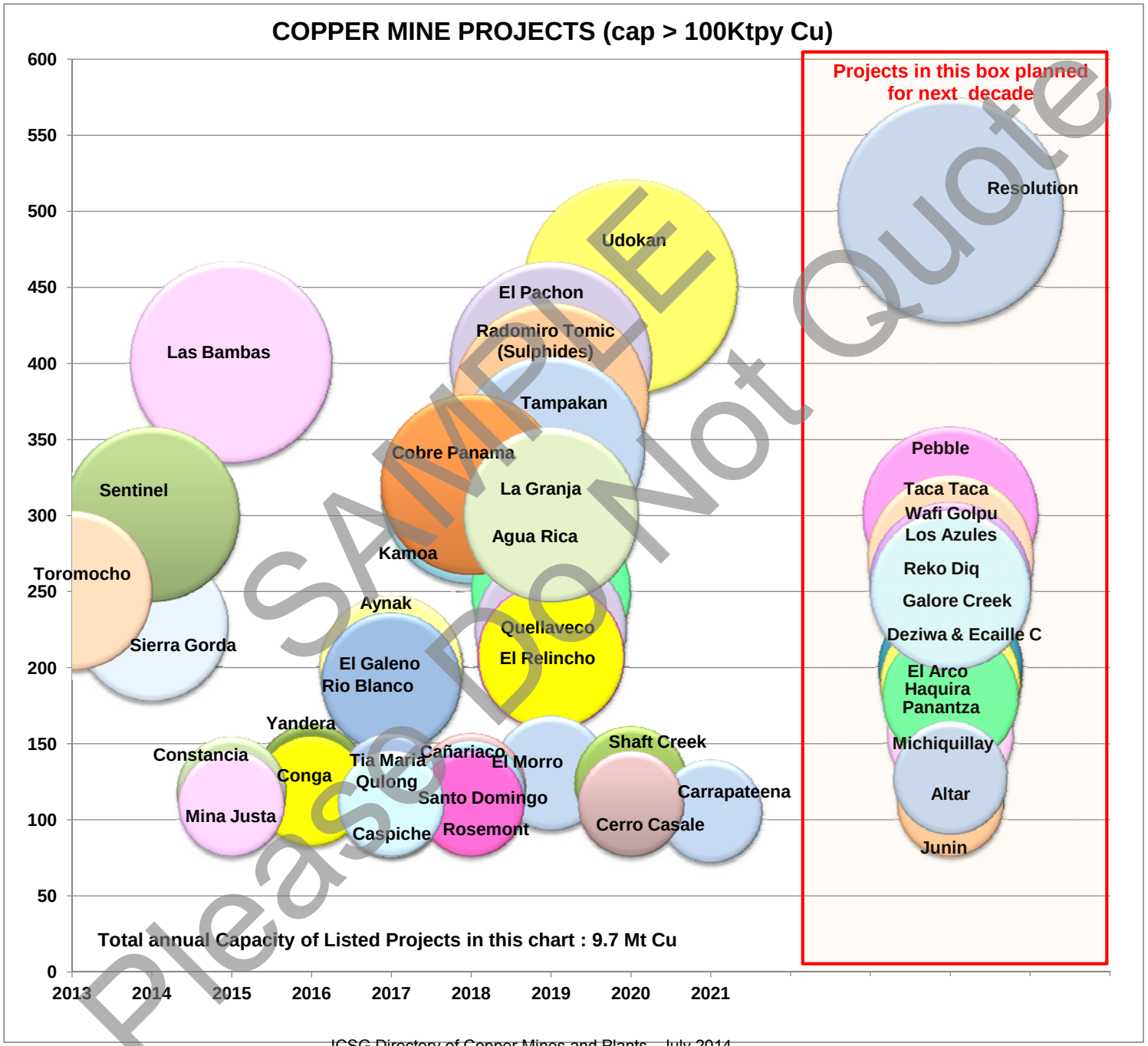

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TABLE H: Ranking of the Biggest 20 World Copper Mines Currently in Operation (basis 2014 capacity)

Thousand metric tonnes copper

Country	Mine	Owner(s)	Process	2014
Chile	Escondida	BHP Billiton (57.5%), Rio Tinto Corp. (30%), Japan Escondida (12.5%)	Concs & SX-EW	1,050
Indonesia	Grasberg	P.T. Freeport Indonesia Co. (PT-FI), Rio Tinto	Concentrates	790
Chile	Collahuasi	Anglo American (44%), Glencore plc (44%), Mitsui + Nippon (12%)	Concs & SX-EW	520
Chile	Los Bronces	Anglo Amercian 75.5%, Mitsubishi Corp. 24.5%	Concs & SX-EW	490
Peru	Antamina	BHP Billiton (33.75%), Teck (22.5%), Glencore plc (33.75%), Mitsubishi Corp. (10%)	Concentrates	450
Chile	Codelco Norte	Codelco	Concs & SX-EW	450
United States	Morenci	Freeport-McMoRan Inc 85%, 15% affiliates of Sumitomo Corporation	Concs & SX-EW	450
Chile	El Teniente	Codelco	Concs & SX-EW	443
Russia	Taimyr Peninsula (Norilsk/ Talnakh Mills)	Norilsk Nickel	Concentrates	430
Chile	Los Pelambres	Antofagasta Plc (60%), Nippon Mining (25%), Mitsubishi Materials (15%)	Concentrates	400
Chile	Radomiro Tomic	Codelco	SX-EW	400
Chile	Andina	Codelco	Concentrates	300
Zambia	Kansanshi	First Quantum Minerals Ltd (80%), ZCCM (20%)	Concs & SX-EW	285
United States	Bingham Canyon	Kennecott	Concentrates	280
Indonesia	Batu Hijau	Pt Newmont Nusa Tenggara (PT Pukuafu 20%, Newmont 41.5%, Sumitomo Corp., Sumitomo Metal Mining & Mitsubishi Materials 31.5%, PT Multi Daerah Bersaing 7%)	Concentrates	250
Iran	Sarcheshmeh	National Iranian Copper Industry Co.	Concs & SX-EW	249
Peru	Cerro Verde II (Sulphide)	Freeport-McMoRan Copper & Gold Inc.53.5%, Compañia de Minas Buenaventura 18.5%, Sumitomo 21%	Concentrates	240
Australia	Olympic Dam	BHP Billiton	Concs & SX-EW	225
Peru	Cuajone	Grupo Mexico (54.1%), Marmon Corp. (15%), Freeport-McMoRan Copper & Gold Inc. (13.9%)	Concs & SX-EW	212
Zambia	Konkola	Konkola Copper Mines (Vedanta 79.4%, ZCCM 20.6%)	Concentrates	200
Total Mine Production Capacity of the 20 biggest world copper mines				8,114

Share in world total copper mine production capacity: 37%

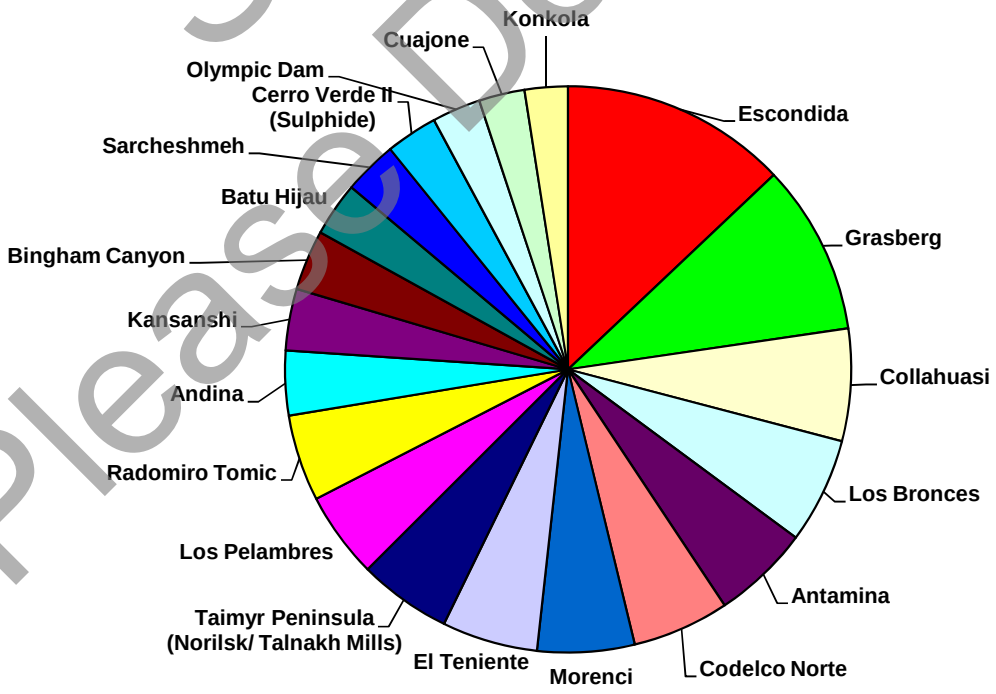

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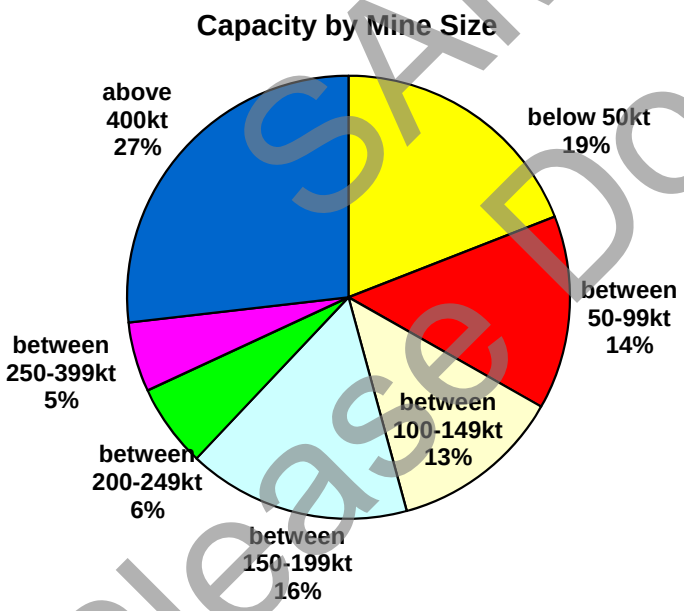
TABLE I: World Copper Production Capacity Currently Available by Mine Size/Type (basis 2014 capacity)

Thousand metric tonnes copper

Production Capacity	2014
Production capacity of mines with capacity above 400ktpy Cu	5,873
Share in world total copper mine production capacity	27%
Production capacity of mines with capacity between 250 and 399ktpy Cu	1,115
Share in world total copper mine production capacity	5%
Production capacity of mines with capacity between 200 and 249ktpy Cu	1,326
Share in world total copper mine production capacity	6%
Production capacity of mines with capacity between 150 and 199ktpy Cu	3,563
Share in world total copper mine production capacity	16%
Production capacity of mines with capacity between 100 and 149ktpy Cu	2,748
Share in world total copper mine production capacity	13%
Production capacity of mines with capacity between 50 and 99ktpy Cu	3,098
Share in world total copper mine production capacity	14%
Production capacity of mines with capacity below 50ktpy Cu	4,175
Share in world total copper mine production capacity	19%
Production Capacity of concentrates	17,048
Share in world total copper mine production capacity	78%
Production Capacity of SX-EW	4,851
Share in world total copper mine production capacity	22%



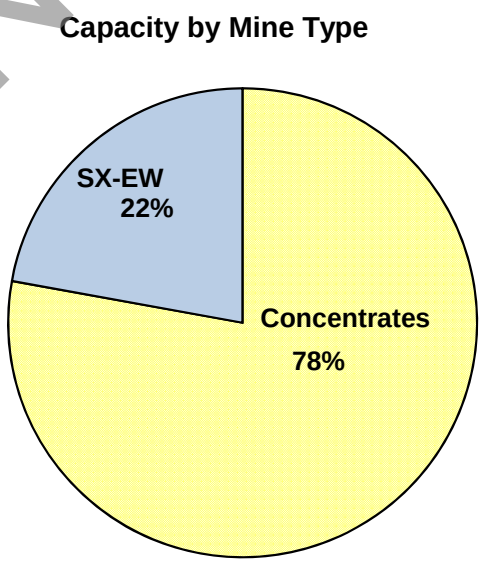


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TABLE J: REFINERY CLOSURES (2004-2014)

Thousand metric tonnes copper

Country	Refinery	Owner (s)	Process	Date of Startup	Date of Closure	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Spain	Berango (Vizcaya)	ELMET	Electrolytic		2004	4										
South Africa	O Okiep (SX-EW)	Metorex	Electrowinning	2002	2004	5										
Romania	Zlatna	Zlatna Metallurgical Enterprise for Nonferrous Metals	Electrolytic	1984	2004	5										
Belgium	Liege	Lamitref Building Products	Fire Refining (S)	1988	2004	15										
China	Dadong (refinery)	Dongchun Bureau of Mines	Electrolytic		2005	10	5									
China	Kangxi (Liangshan) (refinery)	Local Government, Jiangxi Copper 40%	Electrolytic		2005	18	18									
Canada	Sudbury (Copper Cliff)	Inco Ltd.	Electrolytic	1930	2005	140	140									
United States	Miami (refinery)	Freeport-McMoRan Copper & Gold Inc.	Electrolytic		2005	172	172									
China	Xinxing	Shenyang Construction Inv Co., Shenyang Smelter	Electrolytic	1997	2006	100	100	50								
Thailand	Rayong Copper	Thai Asset Management Co. 40%, Thai Film industry 30%, Aker Kvaerner 30%	Electrolytic	2004	2007	40	165	165	50							
Korean Republic	Changhang Refinery	LS-Nikko Co. (LS, Nippon Mining)	Electrolytic	1936	2008	65	65	65	65	5						
China	Chengdu Electrometallurgical Plant	Sichuan Copper Nickel Co.	Electrolytic		2009	3	3	3	3	3	3					
Australia	Nifty (SX-EW)	Aditya Birla Minerals	Electrowinning	1993	2009	28	28	25	15	10	5					
Romania	Baia Mare	Cuprom S.A.	Electrolytic	1965	2009	40	40	40	40	20	5					
Australia	Whim Creek (SX-EW)	Venturex Resources	Electrowinning	2005	2009		9	15	15	15	10					
Italy	Pieve Vergonte (Novara)	Sitindustrie SpA	Fire Refining (S)		2009	30	30	30	30	30	15					
China	Luoyang/ Henan	Luoyang Copper Fabricating Plant (Local Government)	Electrolytic	1950	2009	50	50	50	50	50	40					
Brazil	UHC (SX-EW)	Vale	Electrowinning	2008	2010					1	5	5				
Zambia	Bwana Mkubwa (SX-EW)	First Quantum Minerals	Electrowinning	1998	2010	45	50	50	30	10	10	7				
Canada	Kidd Creek (Timmins)	Glencore plc	Electrolytic	1981	2010	145	145	145	145	145	145	40				
United States	White Pine (refinery)	Hudbay Minerals Inc	Electrolytic	1982	2010	68	68	68	68	68	68	45				
India	Jhagadia (Gujarat)	Jhagadia Copper Ltd (formerly Swill Ltd)	Electrolytic (S)	2004	2010	20	50	50	50	50	50	50				
China	Datong	Tianjin Datong Copper Industry Co., Ltd.	Electrolytic		2011	34	34	34	34	34	34	34	34			
Chile	El Teniente (refinery)	Codelco Chile	Fire Refining	1922	2011	150	162	162	160	160	160	160	70			
Mexico	Refineria Mexico/ D F	Cobre de Mexico S.A.	Electrolytic	1943	2012	150	150	150	150	150	150	150	150	20		
Chile	Ivan/Zar (SX-EW)	Compania Minera Milpo	Electrowinning	1995	2013	10	9	11	10	10	10	5	4	4	1	
Peru	Tintaya (SX-EW)	Glencore plc	Electrowinning	2002	2013	40	40	40	40	35	35	35	35	9	5	
China	Guangzhou Zhujiang	Local Government	Electrolytic		2013	30	30	30	30	30	30	30	30	30	30	
Australia	Port Kembla	Furukawa (71.44%), Nittetsu Mining (20%), Nissho Iwai (5.45%), Itochu (3.11%)	Electrolytic	2000	2003	120	120	120	120	120	120	120	120	120	120	120
						on care and maintenance since 2003										

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TABLE K: DEVELOPING AND PLANNED REFINERY PROJECTS

Thousand metric tonnes copper

Country	Refinery	Owner (s)	Start Up	Process	Status	2014	2015	2016	2017	Cap*
Congo	Kolwezi Tailings (SX-EW)	Eurasian Natural Resources Corporation PLC 70%, DRC Government, Gécamines and Sociéte Immobiliére du Congo 30%.	2014	Electrowinning	Developing	30	70	70	70	70
Congo	Kipoi (SX-EW)	Tiger Resources Ltd	2014	Electrowinning	Developing	-	-	-	-	-
Congo	Mabende (SX-EW)	Sino-Metals Leach Zambia Ltd 60%, Congo Huachin 40%	2014	Electrowinning	Developing	10	20	20	20	20
Namibia	Tschudi (SX-EW)	Weatherly Mining Namibia (Weatherly International Plc 97%)	2015	Electrowinning	Developing	-	7	17	17	17
Zambia	Chingola Refractory Ore (SX-EW)	Konkola Copper Mines (Vedanta 51%, Zambia Copper Investments Ltd. (ZCI) 28.4%, ZCCM 20.6%)	2016	Electrowinning	Developing	-	-	25	50	50
Zambia	Ichimpe (SX-EW)	Zhonghui Mining Group	2014	Electrowinning	Developing	2	25	35	35	35
Zambia	Kakoso (SX-EW)	Sino-Metals Leach Zambia Ltd 88%, Shenzen Resources Ltd 12%	2014	Electrowinning	Developing	1	3	3	3	3
Zambia	Kangaluwi-Chisawa (SX-EW)	Zambezi Resources, Ltd	2016	Electrowinning	Developing	-	-	2	35	35
Chile	Berta (SX-EW)	Coro Mining Corp.	2015	Electrowinning	Developing	-	1	5	7	7
China	Tongling (new refinery)	Tongling Non-Ferrous Metals Group	2014	Electrolytic	Developing	-	-	-	-	-
China	Jinchuan (Fangchenggang refinery)	Jinchuan Non-Ferrous Metal Co.	2014	Electrolytic	Developing	200	400	400	400	400
Iran	Nicico other SX-EW plants	National Iranian Copper Industry Co.	2016	Electrowinning	Developing	-	-	3	5	8
Israel	Arava Mines (SX-EW)	AHMSA Steel Israel Ltd (Altos Hornos de Mexico)	2014	Electrowinning	Developing	2	15	22	22	22
Kazakhstan	Aktogay (SX-EW)	Kazakhmys PLC	2015	Electrowinning	Developing	-	1	15	15	15
Myanmar	Letpadaung (SX-EW)	Wanbao Mining Copper Co.(China North Industries Corp. - Norinco holds 60%)	2015	Electrowinning	Developing	-	25	100	100	100
Mexico	Boleo (SX-EW)	Baja Mining Corp 49%, Korea Resources Group 51%	2014	Electrowinning	Developing	10	40	56	56	56
Mexico	El Pilar (SX-EW)	Mercator Minerals	2016	Electrowinning	Developing	-	-	10	39	39
United States	Idaho Cobalt Project (SX-EW)	Formation Capital Corp.	2016	Electrowinning	Developing	-	-	1	2	2
United States	Chloride Copper Mine (Emerald Isle) (SX-EW)	Sierra Resources Group Inc.	2016	Electrowinning	Developing	-	-	1	4	4
Chile	Antucoya (SX-EW)	Antofagasta Plc 70%, Marubeni Corporation 30%	2015	Electrowinning	Developing	-	30	85	85	85
Peru	Tia Maria (SX-EW)	Southern Copper Corp. (Grupo Mexico)	2017	Electrowinning	Developing	-	-	-	20	120
Peru	Mina Justa (SX-EW)	Marcobre (Minsur 70%, Korean partners 30%)	2014	Electrowinning	Developing	10	50	50	50	50
					Total Electrolytic (currently developping)	200	400	400	400	400
					Total Electrowinning (currently developping)	65	287	520	635	738
					Total Refinery (currently developping)	265	687	920	1,035	1,138
					Additional refinery capacity per year (currently developping)	265	422	233	115	
Congo	Kakanda Proejct (SX-EW)	Greenrock Resouirces. (51%), Gecamines (49%)		Electrowinning	Planned	-	-	-	0	30
Congo	Deziwa & Ecaille C (SX-EW)	Gecamines		Electrowinning	Planned	-	-	-	0	200
Egypt	Red Sea Copper (refinery)	El Sewedy Cables 74%, Glencore plc 26%		Electrolytic	Planned	-	-	-	0	300
Namibia	Haib (SX-EW)	Teck Resources Ltd, Afri-can Marine Minerals Corp.		Electrowinning	Planned	-	-	-	0	-
Zambia	Mashiba (SX-EW)	Luanshya Copper Mines (80% China Nonferrous Metals Mining Co, 20% ZCCM Investment Holdings)		Electrowinning	Planned	-	-	-	0	6
Indonesia	Bontang (refinery)	Pt Nusantara Smelting Corp,. Norilsk Nickel	2019	Electrolytic	Planned	-	-	-	0	200
Indonesia	Maros (refinery)	PT Indosmelt	2018	Electrolytic	Planned	-	-	-	0	120
Indonesia	Indovasi (refinery)	PT Indovasi Mineral Indonesia	2018	Electrolytic	Planned	-	-	-	0	200
Iran	Khatoon Abad	National Iranian Copper Industry Co.	2016	Electrolytic	Planned	-	-	70	150	200
Iran	Sungun (rrefinery)	National Iranian Copper Industry Co.	2017	Electrolytic	Planned	-	-	-	100	200
Kazakhstan	Karchiga (SX-EW)	Orsu Metals Corp. (94.75%)	2018	Electrowinning	Planned	-	-	-	0	13
Mongolia	Erdenetin-Ovoo (SX-EW)	Samsung 51%, Erdenet 49%		Electrowinning	Planned	-	-	-	0	25
Philippines	King King (SX-EW)	St Augustine Gold & Copper Ltd	2017	Electrowinning	Planned	-	-	-	2	70
Thailand	Puthep (SX-EW)	PanAust Ltd 51%, Padaeng Industry Co. 49%		Electrowinning	Planned	-	-	-	0	30
Russia	Udokan (SX-EW)	MetalloInvest	2020	Electrowinning	Planned	-	-	-	-	450
Canada	Carmacks (SX-EW)	Copper North Mining Corp.	2016	Electrowinning	Planned	-	-	7	15	15
Mexico	San Javier (Cerro Verde area) (SX-EW)	Constellation Copper Corp.		Electrowinning	Planned	-	-	-	0	22
Mexico	Terrazas (Cerro Verdo area) (SX-EW)	Constellation Copper Corp.		Electrowinning	Planned	-	-	-	0	9
Mexico	La Balsa (SX-EW)	Binhai Harbour Group HK Co., Limited		Electrowinning	Planned	-	-	-	0	10
Mexico	Empalme (refinery)	Southern Copper Corp.	2017	Electrolytic	Planned	-	-	-	100	350
United States	Nokomis (SX-EW)	Twin Metals Minnesota ltd (JV Duluth Metals Ltd 60%, Antofagasta Plc 40%)		Electrowinning	Planned	-	-	-	0	82
United States	Van Dyke (SX-EW)	Copper Fox Metals Inc.		Electrowinning	Planned	-	-	-	0	-
United States	Zonia (SX-EW)	Redstone Resources Corp.	2016	Electrowinning	Planned	-	-	5	16	16
United States	Florence (SX-EW)	Curis Resources Ltd	2016	Electrowinning	Planned	-	-	20	35	35
Australia	White Range Project (SX-EW)	Queensland Mining Corporation Limited		Electrowinning	Planned	-	-	-	0	15
Argentina	Los Azules (SX-EW)	McEwen Mining Inc.		Electrowinning	Planned	-	-	-	0	255
Argentina	San Jorge (SX-EW)	Coro Mining Corp.		Electrowinning	Planned	-	-	-	0	24
Brazil	118 Project (SX-EW)	Vale (50%), BNDES (50%)		Electrowinning	Planned	-	-	-	0	40
Chile	Puquios (SX-EW)	Minera Las Pascualas		Electrowinning	Planned	-	-	-	0	15
Chile	El Espino (SX-EW)	Sociedad Punta del Cobre (Pucobre) 51%, Explorator Resources 49%	2018	Electrowinning	Planned	-	-	-	0	40
Chile	Diego de Almagro (SX-EW)	Can Can, Copec Group	2017	Electrowinning	Planned	-	-	-	2	11
Peru	Lunahuana (SX-EW)	Cadente Copper Corp.		Electrowinning	Planned	-	-	-	0	-
Peru	La Granja (SX-EW)	Peruvian Government (Rio Tinto is exploring the project)	2019	Electrowinning	Planned	-	-	-	0	300
Peru	Coroccohuayco (SX-EW)	Glencore plc	2015	Electrowinning	Planned	-	5	50	50	50
					Total of selected planned refineries above					3333

* Expected production capacity

Note: "Planned" includes projetcs currently at the feasibility or evaluation status. For mines under feasibility or exploration status and plants under planned status, capacity data is not included in the country capacity totals if start-up dates are unknown. Therefore effective country totals can be higher and will be updated as soon as each mine or plant start-up dates are publicly announced. More information on the planned mines and plants projects can be found in tables 1, 2 and 3 of the Directory.

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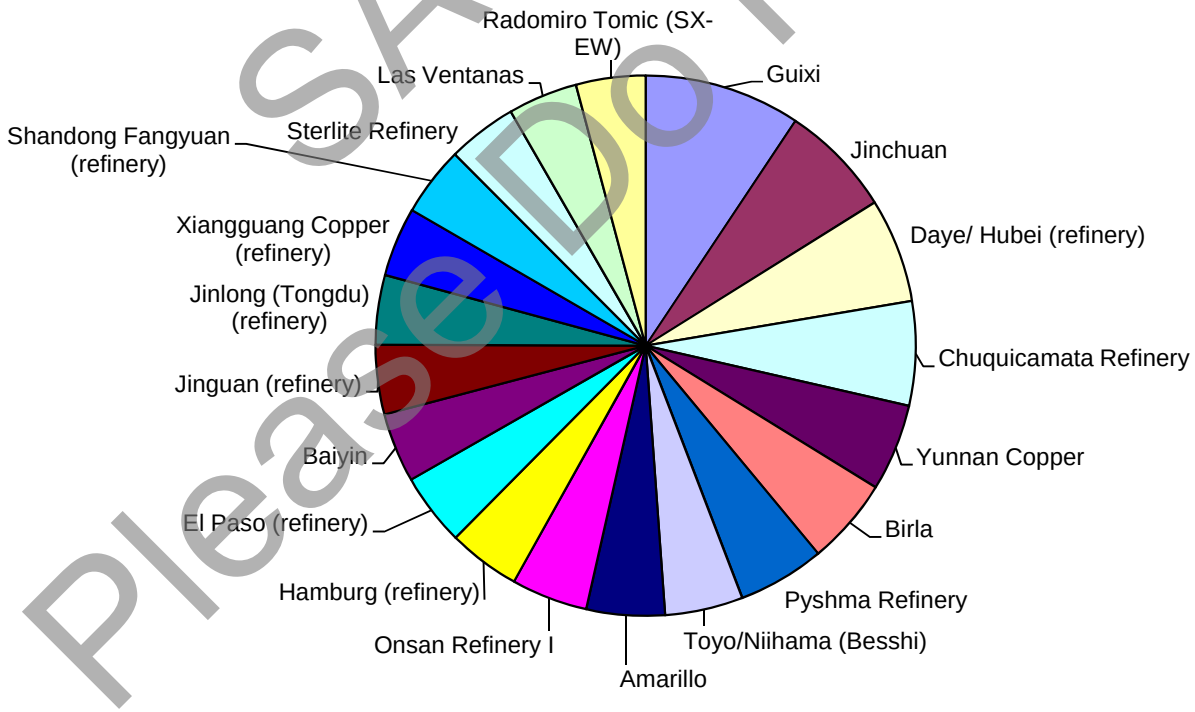
TABLE L: Ranking of the Biggest 20 World Copper Refineries Currently in Operation (basis 2014 capacity)

Thousand metric tonnes copper

Country	Refinery	Owner(s)	Process	2014
China	Guixi	Jiangxi Copper Corporation	Electrolytic	900
China	Jinchuan	Jinchuan Non Ferrous Co.	Electrolytic	650
China	Daye/ Hubei (refinery)	Daye Non-Ferrous Metals Co.	Electrolytic	600
Chile	Chuquicamata Refinery	Codelco	Electrolytic	600
China	Yunnan Copper	Yunnan Copper Industry Group (64.8%)	Electrolytic	500
India	Birla	Birla Group Hidalco	Electrolytic	500
Russia	Pyshma Refinery	Uralelectromed (Urals Mining & Metallurgical Co.)	Electrolytic	500
Japan	Toyo/Niihama (Besshi)	Sumitomo Metal Mining Co. Ltd.	Electrolytic	450
United States	Amarillo	Grupo Mexico	Electrolytic	450
Korean Republic	Onsan Refinery I	LS-Nikko Co. (LS, Nippon Mining)	Electrolytic	440
Germany	Hamburg (refinery)	Aurubis	Electrolytic	416
United States	El Paso (refinery)	Freeport-McMoRan Copper & Gold Inc.	Electrolytic	415
China	Baiyin	Baiyin Nonferrous Metals	Electrolytic	400
China	Jinguan (refinery)	Tongling Non-Ferrous Metals Group	Electrolytic	400
China	Jinlong (Tongdu) (refinery)	Tongling NonFerrous Metal Corp. 52 %, Sharpline International 13%, Sumitomo Corp. 7.5%, Itochu Corp. 7.5%	Electrolytic	400
China	Xiangguang Copper (refinery)	Yanggu Xiangguang Copper Co	Electrolytic	400
China	Shandong Fangyuan (refinery)	Dongying, Shandong	Electrolytic	400
India	Sterlite Refinery	Vedanta	Electrolytic	400
Chile	Las Ventanas	Codelco	Electrolytic	400
Chile	Radomiro Tomic (SX-EW)	Codelco	Electrowinning	400
Total Refinery Production Capacity of the 20 biggest world copper refineries				9,621

Share in world total copper refinery production capacity: 35%



SAMPLE Please Do Not Quote

TABLE M: World Copper Production Capacity Currently Available by Refinery Size/Type (basis 2014 capacity)

Thousand metric tonnes copper

Production Capacity	2014
Production capacity of refineries with capacity above 400ktpy Cu	9,621
Share in world total copper refined production capacity	35%
Production capacity of refineries with capacity between 250 and 399ktpy Cu	6,680
Share in world total copper refined production capacity	24%
Production capacity of refineries with capacity between 200 and 249ktpy Cu	3,314
Share in world total copper refined production capacity	12%
Production capacity of refineries with capacity between 150 and 199ktpy Cu	1,498
Share in world total copper refined production capacity	5%
Production capacity of refineries with capacity between 100 and 149ktpy Cu	2,705
Share in world total copper refined production capacity	10%
Production capacity of refineries with capacity between 50 and 99ktpy Cu	1,958
Share in world total copper refined production capacity	7%
Production capacity of refineries with capacity below 50ktpy Cu	1,679
Share in world total copper refined production capacity	6%
Production Capacity of Electrowinning Refineries	4,927
Share in world total copper mine production capacity	18%
Production Capacity of Electrolytic Refineries	21,904
Share in world total copper mine production capacity	80%
Production Capacity of Fire-Refining	624
Share in world total copper mine production capacity	2%

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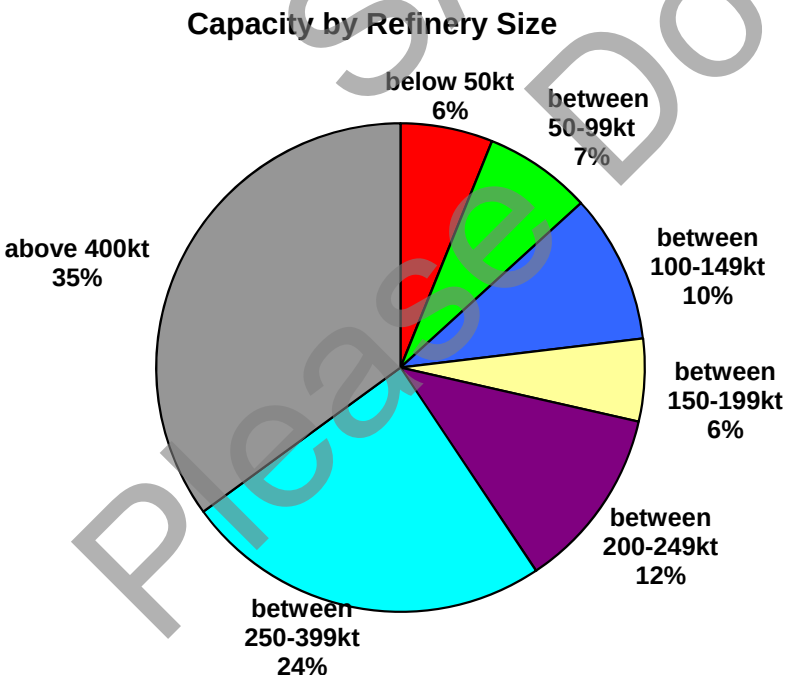

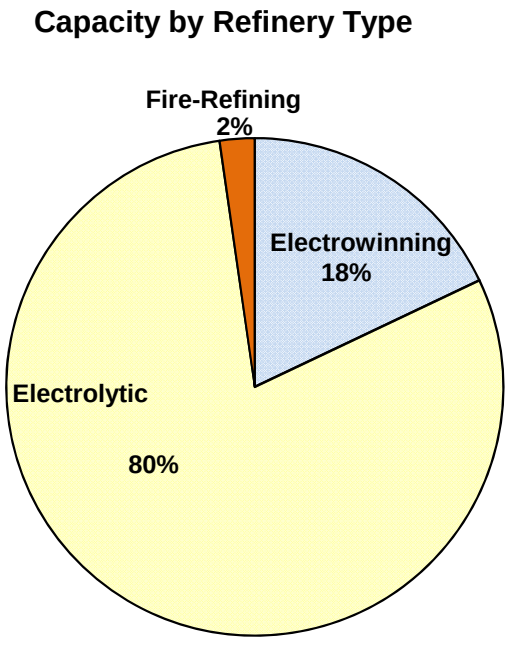

TABLE N: WORLD COPPER PRODUCTION CAPACITY EVOLUTION

('000t Cu)	*2013*	*2014*	*2015*	*2016*	*2017*	accumulated growth %	Avg annual growth %
SX-EW	4,766	4,916	5,316	5,717	5,877	23.3%	5.4%
Concentrates	16,285	17,106	18,084	19,865	21,598	32.6%	7.3%
Total Mines	21,050	22,021	23,399	25,581	27,474	30.5%	6.9%
Total Smelters	19,722	20,541	21,211	21,527	21,772	10.4%	2.5%
Electrolytic Refineries	21,223	22,224	22,714	22,734	22,849	7.7%	1.9%
Total Refineries	26,689	27,840	28,730	29,151	29,426	10.3%	2.5%

Year on Year Growth (tonnage)	***2014***	***2015***	***2016***	***2017***	***accumulated growth***
SX-EW	150	400	401	160	1,111
Concentrates	821	978	1,781	1,733	5,313
Total Mines	971	1,378	2,182	1,893	6,424
Total Smelters	819	670	316	245	2,050
Electrolytic Refineries	1,001	490	20	115	1,626
Total Refineries	1,151	890	421	275	2,737

TABLE O: COMPARISION BETWEEN CURRENT AND PREVIOUS DIRECTORY (tons change)

('000t Cu)	*2014*	*2015*	*2016*	*2017*
SX-EW	-43	-38	-14	-17
Concentrates	-181	-519	-661	-818
Mines Total	-224	-557	-675	-865
Smelters	-415	-255	-215	-215
Electrolytic Refineries	-150	0	0	0
Refineries Total	-198	-48	-14	-17

SAMPLE Please Do Not Quote

Table1: WORLD COPPER MINES PRODUCTION CAPACITIES 2012 To 2017

Thousand metric tonnes copper

Mine	Operator/Owner(s)	Process	Status	Type (1)	Start Up	Closure/ LOM (2)	Concs. Cu %	Other Metals	Short remarks	2012	2013	2014	2015	2016	2017	Project Cap.
Afghanistan			**Operating+Developing**												**50**	**200**
Aynak	Jiangxi Copper 25%, China Metallurgical Group Corp. (MCC) 75%	Concentrates	Developing	OP, UG	2017				Startup delayed from 2011 to after 2016. Delays due to Afghan situation, presidencial election 2014, clearing of landmines and recovery of majour archeological discovery from 2-9th century on site. Resource of 454.4Mt @ 1.75% Cu. Inicial open pit mine producing at 197ktpy Cu, adding underground section three years later will increase total prod to 394ktpy in a 2nd phase that might include a 20ktpy Cu SX-EW plant. Mine life 30Y.						50	200
Balkhab	Turkish-Afghan Mining	Unknown Mine	Exploration					Au	Joint venture between Afghan Gold and Minerals Co and Eti Gumus SA. Obtained in Dec 2012 the license for the Badakhshan gold and copper deposit, in the Badakhshan province, in north-eastern Afghanistan. Volcanogenic massive sulphide (VMS)						0	
Shaida	Afghan Minerals Group	Unknown Mine	Exploration						Afghan Minerals Group was granted in Dec 2012 a license to explore the Shaida copper deposit, in the province of Herat, in western Afghanistan.. Copper porphyry deposit.						0	
Zarkashan	Sterling Mining 50%, Belhasa International Co. 50%	Unknown Mine	Exploration					Au	Consortium chosen by the Afghan government in December 2012 to develop the project.						0	
Albania			**Exploration+Feasibility**												**0**	
Mirdita	Tirex Resources Ltd	Concentrates	Feasibility					Au, Zn	Many of the 17 known historical deposits on Tirex's large Mirdita property were previously in production or were being readied for production when the country's state mining regime collapsed. Major Financier: European Bank for Reconstruction and Development						0	
Angola			**Exploration+Feasibility**												**0**	
Cachoeiras de Binga	Cityview Corporation Ltd. (Fortitude Minerals Ltd)	Unknown Mine	Exploration						Fortitude Minerals has 8 licences among which Zenza Dondo, Benguela and Bentiabe						0	
Cassenha Hill	Sable Minerals Ltd 70%, Discovery Group 30%	Unknown Mine	Exploration					Au, U	The Cassenha Hill deposit sits within the larger 3,670 square kilometer Longonjo tenement area and is highly prospective for copper, gold, rare earths and iron mineralization. Sampling work has confirmed the presence of widths and high grade copper to a peak of 4.16% copper at Cassenha Hill. Dromana Estate Ltd failed to get option in Nov 2013.						0	
Mavoio-Tetelo-Bembe	Hansa Resources Ltd	Unknown Mine	Exploration					Ag	Includes historic Mavoio mine that stopped production in 1972 (30ktpy Cu) plus Tetelo & Bembe deposits. Hansa decided to cancelled exploration activity in Feb09 due to blobal economic crisis.Uige Province						0	
Menongue	Geomineira	Concentrates	Feasibility						Cuando-Cubango province						0	

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Thousand metric tonnes copper

Mine	Operator/Owner(s)	Process	Status	Type (1)	Start Up	Closure/ LOM (2)	Concs. Cu %	Other Metals	Short remarks	2012	2013	2014	2015	2016	2017	Project Cap.
Argentina			**Operating+Developing**							**140**	**120**	**120**	**120**	**100**	**100**	
Argentina			**Exploration+Feasibility**												**0**	**1,327**
Argentina			**Total Status**							**140**	**120**	**120**	**120**	**100**	**100**	**1,327**
Agua Rica	Yamana Gold Inc	Concentrates	Feasibility	OP	2019			Au, Ag, Mo	Avg prod capacity 250kt Cu for first 5years and 150kt for 26yr mine life. Minera Alumbrera has 4 years option to acquire Yamana's 100% interest. During the option period Minera Alumbrera will manage the Agua Rica project and fund a feasibility study and all development costs option. Deposit located 35km from Bajo de la Alumbrera mine. The feasibility study was completed as planned in 3Q13 and companies agreed to an extension period of 12 months in which certain optimizations would be undertaken						0	250
Altar	Stillwater Mining Company	Concentrates	Feasibility	OP			26	Au, Ag, As	Potential to become a significant large-scale copper gold mine, producing approximately 127 ktpy Cu and 24,000 ounces of gold. In 3Q 2013, announced reviewing alternatives to optimize its investment in Altar						0	127
Arizaro	Goldrock Mines Corp.	Unknown Mine	Exploration					Au	Porphyry copper-gold target. The drilling confirms management's belief that Arizaro is a significant gold-copper porphyry system with						0	
Bajo de la Alumbrera	Glencore plc 50%, Goldcorp Inc 37.5%, Yamana Gold 12.5%	Concentrates	Operating	OP	1997	2019	25	Au, Ag, Mo	Expansion in Dec 2006. Expected end of mining operations by 2019.	140	120	120	120	100	100	
Catua	Regulus Resources Inc.	Unknown Mine	Exploration						Copper oxides grading up to 20% copper occur within a clastic breccia which is spatially associated with a regional fault zone. Copper minerals include copper wad, malachite, azurite and chryscolla. The breccia is also anomalous in lead, zinc, cobalt, arsenic and barium						0	
El Camino	Regulus Resources Ltd	Unknown Mine	Exploration					Ag, Zn, Pb	iron-oxide-copper-gold prospect. Hematite ± fluorite ± quartz and copper oxides occur in a series of breccias and veins in Tertiary aged volcanic rocks of intermediate composition. Surface and drill core sampling thus far has indicated that mineralized rocks are anomalous in zinc, lead, silver, copper and gold						0	
El Pachon	Glencore plc	Concentrates	Feasibility	OP	2019			Mo, Ag, Au	Total contained copper metal in Mineral Resources at 15 million tonnes. Feasibility Study update completed. Expected production 400ktpa Cu for first five years, average over LOM 280ktpa Cu. LOM 30 years						0	400
Josemaria	NGEx Resources Inc 60%, JOGMEG 40%	Concentrates	Exploration				25	Au, Ag	Large Au-Cu (Mo) porphyry system discovered in 2003. Copper contained in Indicated Resources 6.1 billion pounds. Located in San Juan provincia at an elevation of 4000-4900 metres. Oxide gold cap at surface. Straightforward metallurgy producing high quality precious metal rich concentrate grading 25% Cu, 16.8 g/t Au, high Ag; Updated technical report in 1Q 2015.						0	
Los Azules	McEwen Mining Inc.	SX-EW	Feasibility	OP					Annual copper production during years 1-5 to average 255kt. Life of mine annual copper production to average 171kt over 35 years. Indicated resource of 5.4 Bl lb Cu (0.63% Cu) and 0.8 Moz and Inferred resource of 14.3 Bl lb Cu (0.46% Cu) and 2.6 Moz Au. The mine would produce a copper cathode via a pressure oxidative leach process, in addition to heap leaching the lower grade mineralized material.						0	255
Mogote	Golden Arrow Resources	Unknown Mine	Exploration					Au, Ag	In September 2010 entered into an option agreement with Vale Exploracion Argentina, S.A. ("VEASA"), a wholly-owned subsidiary of Vale S.A. ("Vale"), on its Mogote and its Purulla project. In July 2013 Vale terminated the option agreement. The Company is currently seeking new joint venture partners for the project.						0	

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Pascua-Lama (Argentina)	Barrick Gold Corp.	Concentrates	Developing	OP				Au, Ag	Orebody located 75% in Chile, 25% in Argentina. Construction started May09 but delayed by Copiapo Court of Appeals rulling in Jul 2013 that company must complete water management system in compliance with the project's environmental permit before resuming construction. In 3Q2013, Barrick decided to suspend the project. The decision to re-start will depend on improved project economics such as go-forward costs, the outlook for metal prices, and reduced uncertainty associated with legal and other regulatory requirements.. Gold prod was expected for mid-2014 with copper later. Reserves of 649.5Mlb Cu. Mine life 25 years, expected average annual production is about 12kt Cu. Production data inserted in Chile.						0	
Purulla	Golden Arrow Resources	Unknown Mine	Exploration					Mo	In September 2010 entered into an option agreement with Vale Exploracion Argentina, S.A. ("VEASA"), a wholly-owned subsidiary of Vale S.A. ("Vale"), on its Mogote and its Purulla project. In July 2013 Vale terminated the option agreement. The Company is currently seeking new joint venture partners for the project.						0	
Rio Grande	Regulus Resources Inc.	Unknown Mine	Exploration					Au, Ag	Regulus Resources Inc merged with Pachamama Resources Inc in May 2012. Drill program started mid-2011. Inferred resources – 1,002,458 Oz Au, 14,449,042 Oz Ag, 674,405,000 lbs Cu. An ongoing re-evaluation of all previous drilling is continuing to provide a better understanding of this large copper-gold-molybdenum system and define additional targets.						0	
San Jorge	Coro Mining Corp.	SX-EW	Feasibility	OP				Au, Ag	Mineral reserves of 48.4 million tonnes, with an average grade of 0.61%CuT, of which 55% is oxide and 45% is enriched. Completed PFS for 24 ktpy Cu bi-provincial heap leach project, involving transport of ore from mine site in Mendoza to proposed SXEW plant site in San Juan province due to a ban on sulphuric acid use in Mendoza state. Mine life 10Y. Dec 2013 signed a binding Heads of Agreement ("HOA") with a group comprised of Aterra Investments Ltd. and Solway Industries Ltd. for them to have rights to acquire an interest in the San Jorge project .						0	24
Taca Taca	Lumina Copper Corp.	Concentrates	Feasibility					Au, Mo	PEA released in Apr2013. Avg life of mine copper production of approx. 244ktpy Cu over a 28 year mine life. LOM gold production 110kozpy, molybdenum 4.1ktpy. Copper production over the first seven years will average 271ktpy wiith a peak in year two of 349kt Cu. indicated mineral resource estimate of approx 9.6 million tonnes of copper and an inferred mineral resource estimate of approximately 3.4 million tonnes of copper. First Quantum acquired Lumina Copper Corp in 2014.						0	271
Armenia			**Operating+Developing**							**38**	**38**	**41**	**54**	**64**	**64**	**30**
Armenia			**Exploration+Feasibility**												**0**	
Armenia			**Total Status**							**38**	**38**	**41**	**54**	**64**	**64**	**30**
Agarak	Geopromining	Concentrates	Operating	UG	1963			Mo		6	6	6	6	6	6	
Alaverdy	Armenian Copper Program	Concentrates	Operating	UG	2002				On C&M since Nov08 due to weak market conditions.	2	2	2	2	2	2	
										on C&M						
Armanis	Metal Prince Ltd.	Unknown Mine	Exploration					Au, Pb, Zn	Akhtala & Armanis deposits.						0	
Drmbon	Base Metals Company	Concentrates	Operating	UG	2004			Au, Ag	Mine life 8-10 years.	4	4	2				
Hankavan	Global Gold Corp.	Unknown Mine	Exploration					Au							0	

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Kajaran	Zangezur Copper Molybdenum Combine (Cronimet Mining 60%, Armenian Company of Pure Iron 15%, Armenian Molybdenum Production 12.5%, Zangezur Mining 12.5%)	Concentrates	Operating	OP, UG	1945		27	Mo, Zn, Pb	Conc @ 27% Cu, modernized in 2006.	20	20	20	20	20	20	
Kapan	Dundee Precious Metals	Concentrates	Operating	UG	1846		18	Au, Zn, Ag	Revived 1995. Includes Shahumyan and Centralni mines. Placed on C&M in Nov08 due to global crisis. Re-started Apr09. Construction was completed on the new lead circuit, which was installed to address the high lead content in the copper concentrate. Exploration drilling results continue to support the potential to expand the capacity and life of mine	1	1	1	1	1	1	
Shamlugh	Metal Prince Ltd	Concentrates	Operating		1967				Shamlugh mine & Akhtala concentrator privatized in 2001.	5	5	5	5	5	5	
Teghout	Armenian Copper Program	Concentrates	Developing		2014			Mo	30ktpy Cu in concs. Forseen for 2012 but development delayed by global crisis.			5	20	30	30	30
Australia			**Operating+Developing**							**1,049**	**1,132**	**1,174**	**1,213**	**1,231**	**1,233**	**24**
Australia			**Exploration+Feasibility**											**15**	**95**	**346**
Australia			**Closed**							**25**	**25**				**0**	
Australia			**Total Status**							**1,074**	**1,157**	**1,174**	**1,213**	**1,246**	**1,328**	**370**
Alford	Argonaut Resources	Unknown Mine	Exploration						Iron oxide copper and gold mineralisation present in initia pre-collar. Highlights of Intercepts include: 78m at 0.62% Cu from 88m including 54m at 0.86% Cu from 88m						0	
Balcooma	Snow Peak Mining Pty Ltd	Concentrates	Operating	OP				Pb, Zn, Au	Ore treated at the Mt. Garnet processing plant.						0	
Benambra	Independence Group NL	Unknown Mine	Exploration					Au, Ag, Zn	Stockman base metals project. Jabiru Metals Ltd acquired by Independence Group NL in Jun2011						0	
Boddington Gold	Newmont Mining	Concentrates	Operating	OP	2009				Started Jul09, mine life 24Y. Biggest gold mine in Australia.	30	35	35	35	35	35	
Browns Oxide Project (BOP)	Compass Resources (90%)	SX-EW	Operating		2008			Co, Ni	Started May 2008, capacity 10ktpy. Mine life 10 years. Possible conc prod (sulfide project). On Jan 2009, Compass Resources went into voluntary administration. Mine on C&M since end 2010.	10 on C&M	10	10	10	10	10	
Cadia Valley Operations	Newcrest Mining Ltd.	Concentrates	Operating	UG	1998		20	Au	Cadia Valley Operations (CVO) comprises three mines - the Cadia Hill open pit mine and the Cadia East and Ridgeway underground mines. Cessation of mining of the Cadia Hill open pit in June 2012. Cadia East Underground project started 4Q 2012. Capacity increase from 75 to 90kty Cu.	50	70	90	90	90	90	
Carrapateena	OZ Minerals Ltd	Concentrates	Feasibility	UG	2021		35	Au, Ag, U	Large Iron Oxide Copper Gold deposit – similar to Prominent Hill. Indicated and Inferred Resources of 292Mt at 1.29% Cu, 0.48g/t Au (0.7% Cu cut off). Pre-feasibility due for completion by mid 2014 for internal review. Production of a high grade copper concentrate at 100-110 ktpy Cu contained and 100-130 kozpy Au. Mine life +20 years.						0	105
Cloncurry Copper Project	Chinalco Yunnan Copper Resources Ltd	Concentrates	Exploration					Au, Ag, Co	The Cloncurry North Project is located in the Proterozoic Mount Isa Inlier of northwest Queensland. JV with Yunnan Exploration. Drilling started Nov 2013. Jun 2014 announced significant new copper/gold discovery at Jubilee and further confirmation of a potentially large mineralised system at Millenium. Further exploration in these key target areas will be conducted in the next months.						0	

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Cobar (CSA Mine)	Glencore plc	Concentrates	Operating	UG	1871	2018 or 20123	29	Zn, Pb, Ag, Au	Mine closed 1998 and reopened 1999 by Glencore. Conc @ 29% Cu.New shaft extension reducing operating costs, allowing access to more ore, increasing production by 50%. The expected remaining life of mine is approx 5years based on reserves and approximately 10 years based on resources (basis Dec 2013 data)	45	50	60	70	70	70	
Copper Hill project	Golden Cross Resources Ltd	Concentrates	Feasibility	OP			25	Au	Containing 493,000 tonnes of copper and 1.33 million ounces of gold. Could produce per year. 36,500 tonnes copper and 79,100 ounces gold in concentrate @25% Cu. Mine life 7 years.						0	36
DeGrussa	Sandfire Resources NL.	Concentrates	Operating		2012		27	Au	OP (2 years) and UG (7 years). Production of 60-70ktpy Cu in concentrates @27% Cu Construction started mid 2011 and production started Sep 2012.	5	60	70	70	70	70	
Elaine (Mt Isa)	Chinalco Yunnan Copper Resources Ltd 70%, Goldsearch Limited 30%	Unknown Mine	Exploration						Elaine forms part of the Mary Kathleen Joint Venture Project at Mt Isa. An Inferred JORC resource for the copper and gold mineralisation at the Elaine 1 copper, gold, light rare earth elements (LREE), uranium and thorium has been completed to the end of June 2012. 26.1Mt @ 0.56% Cu & 0.09g/t Au (0.62% CuEq) for contained metal content of 146,000t copper and 74,000oz gold.						0	
Eloise	Minotaur Exploration	Concentrates	Operating	UG	1996			Au, Ag	Eloise deep resource to be developed. Placed on C&M Dec08 and restarted production in Jan 2011.	17	17	17	17	17	17	
Ernest Henry	Glencore plc	Concentrates	Operating	OP, UG	1998	2026		Au	Transition from OP mining to UG in 2013-2015. Mine life extended to 2026. Aquisition of Mount Margaret Project from Exco Resources early 2011, cap 30ktpy that adds production to Ernest Henry since Sep 2012. Ernest Henry doubling production to 50kt in 2015. Average production of aprox 70ktpy Cu from the combined Ernest Henry underground mining and Mount Margaret open pit operations.	30	35	50	70	70	70	
Golden Grove	Minmetals	Concentrates	Operating	OP, UG	1990	2019	20	Zn, Pb, Ag, Au	Includes Scuddles & Gossan Hill mines. Due to weak market Schuddles placed on C&M in Dec08 and expansion plans suspended. Sold by OZ Minerals to Minmetals in Jun09. Open pit started in Jan 2012 to produce in 2012-2014. Mine life 2019	30	35	27	25	25	25	
Hillside	Rex Minerals Ltd	Concentrates	Feasibility	OP	2016			Au, Fe	2 Mt Copper deposit. To produce 75ktpy Cu in concentrates. Mine life 15+. Starts 1Q2016.					15	75	75
Jaguar	Independence Group NL	Concentrates	Operating	UG	2007	2018	25	Zn, Ag	Started Jun07. Undergoing exploration plan. Jabiru Metals Ltd acquired by Independence Group NL in Jun2011. Mine life 2018.	9	9	9	9	9	9	
Jervois	Kentor Gold Resources	Concentrates	Feasibility	OP	2017		25	Au, Ag	13.5 Mt @ 1.3% copper and 25.8 g/t silver containing 170,416 tonnes of copper. Kentor is targeting a copper flotation project producing around 20-25 ktpy Cu contained in a 25% Cu grade concentrate. Pre Feasibility Study is slated for completion in Sep 2014.						5	20
Kalkaroo	Havilah Resources NL	Concentrates	Feasibility	OP			31	Au, Mo	Glencore exited the project. Havilah continues to engage with parties with regard to the commercialisation development of Kalkaroo. Resources of 623Kt Cu. Prodution of 44 ktpy Cu in concs & 90,000 oz pa gold from 9Mtpa throughput over 15 year mine life.						0	44

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Kanmantoo	Hillgrove Resources	Concentrates	Operating		2011	2023	25	Au	Brownfield site (70's). Hillgrove acquired the Western Australian Lennard Shelf Project's Pillara processing plant and associated mine equipment in late 2009. Started Nov 2011, The Project is an open-cut mine with initial throughput of 2.4Mt pa, producing approximately 80ktpy concentrats containing about 20ktpy Cu and 10,000oz of gold with exploration potential for further copper-gold mineralisation.	15	20	25	25	20	20	
Lady Annie	CST Mining Group Ltd.	SX-EW	Operating	OP	2007		22		Started Jun07. CopperCo entered receivership in Nov08. Mining activities suspended in Mar09. CST Mining acquired mine in May 2010 and mine restarted production in Nov 2010.	30	30	30	30	30	30	
Little Eva (Roseby)	Altona Mining Ltd	Concentrates	Feasibility	OP	2017			Au	Little Eva is part of the Roseby Project. Large tenement 260Mt at 0.6% Cu, 0.05g/t Au, 1.52Mt contained coppe. Mine life 11Y. Expected production of 39ktpy Cu. The process to sell, partner or finance the Little Eva Project continues						15	39
Mineral Hill Mine	KBL Mining Limited	Concentrates	Operating	OP	1989, 2011	1998	25	Au, Pb, Bi	Triako resources sold the mine to KBL Mining in 2005 and the mine restarted July 2011. Annual capacity is 20ktpy concentrates at 25% Cu.	5	5	5	5	5	5	
Mount Isa	Glencore plc	Concentrates	Operating	UG	1931	2020		Ag, Pb, Zn	The development of a large scale zinc-lead-copper open pit at the site has the potential to extend the life to beyond 2060.	170	170	170	170	170	170	
Mount Kelly	CopperCo Ltd.	Unknown Mine	Exploration						Mt. Clarke & Flying Horse. CopperCo placed in receivership in Nov08.						0	
Mount Lyell	Sterlite Industries (Vedanta)	Concentrates	Operating	UG	1893		28	Au, Ag, Pyrite	Production suspended due to a mud rush at one of the stopes in Jan 2014. In Jul 2014 mine was shut down and put into care and maintenance after the discovery of a rock fall in the mine's ventilation drive. It would be at least 18 months before any reopening of the mine could be possible if it is found to be technically and economically feasible to do so.	25 on C&M	25	25	25	20	20	
Mt Cuthbert & Mt Watson Project	Malaco Leichard Pty	SX-EW	Operating	OP	1997, 2007				Closed in 2002. Restarted Jun07. Mt Cuthbert processing facility + Mt Watson & Leichhardt deposit. Exp. to 9ktpy in 2008. Matrix Metals placed in receivership Nov08. On full C&M since Feb09. Cape Lambert acquired mine in 2010. Malaco Leichardt Pty bought mine in 2013 and production restarted in Feb 2014. Capacity of 9ktpy cathode with potential to further increase capacity via modular expansions	9	9	9	9	9	9	
Mt. Garnet	Snow Peak Mining Pty Ltd	Concentrates	Operating	OP, UG	2003	2014		Zn, Pb, Ag, Au	Treats ore from Balcooma and Mt Garnet. Kagara Ltd went into voluntary administration in H1 2012. All mines placed in C&M. In Jan 2013 Snow Peak Mining Pty Ltd aquired Kangara processing plant at Mt Garnet and the Surveyor/Balcooma, the Einasleigh and the Maitland projects. SPM entered into an agreement with Consolidated Tin Mines Ltd to treat ore from the close Mt Garnet tin project to produce 5ktpy tin in concentrates at the Mt Garnet processing. Copper production re-started 2013 and is expected to end when tin production starts 4Q2014.	15	6	6				
Mt. Gordon (Gunpowder)	Aditya Birla Minerals	Concentrates	Operating	OP	1990				Switched from SX-EW to concentrates in 2004. In 2007, Shalina Resources bought the Mount Gordon Cu SX/EW plant for the Etoile mine in DRC. Put on C&M in Jan09. Restarted operations in 2Q 2011. On Care and Maintenence since mid 2013	20 on C&M	20	20	20	20	20	

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Mungana	Kagara Ltd.	Concentrates	Developing					Zn, Pb, Ag, Au	Construction of a new base metal concentrator commenced at on May08 to produce 6ktpy. Due to the Global Crisis construction was suspended but mining icontinued for treatment at Mt Garnet processing plant. Kagara went into voluntary administration in H1 2012. All mines placed in C&M. End 2013 company whent into liquidation.						0	
Mutooroo	Havilah Resources NL	Concentrates	Feasibility					Cu, Co	Expected production of 8 to 15ktpy Cu. Reserves of 192kt copper. High value ore supports direct shipping for offshore processing. But a high grade copper concentrate could be produced on site.						0	12
Nifty	Aditya Birla Minerals	Concentrates	Operating	OP	1993				Concentrate production started 3Q05. Cathode production ended in 2009 with ceasing of oxide ore mining.	50	50	50	50	50	50	
North Parkes (Goonumbla)	China Molybdenum Co., Ltd. (80%), Sumitomo (20%)	Concentrates	Operating	OP, UG	1995		34	Au, Ag	E48 block cave project (new underground block cave mine and additional surface mining infrastructure) suspended in Jan09 and resarted in Sep09.Project increased resource tonnes and will extend mine life to 2023. Ttesting a continuous mechanical rock excavation system. In July 2013 Rio Tinto has reached a binding agreement for the sale of its 80 per cent interest to China Molybdenum Co., Ltd.	55	55	55	55	55	55	
Olympic Dam	BHP Billiton	Concentrates	Operating	UG	1988			U (U3O8), Au, Ag	Project: new OP mine operating simultaneously with existing UG mine. Smelter to be expanded,new concentrator & hydrometallurgical plants to be built. Additional 1.8Mtpy of Concs and 515kt cathode. Expansion would be a progressive development with construction activity over a period of 11 years. An Identification Phase Study is being conducted to identify all possible mining methodes and less capital intensive designs.	210	210	210	210	210	210	
Olympic Dam	BHP Billiton	SX-EW	Operating	UG	1988			U (U3O8), Au, Ag	Project: new OP mine operating simultaneously with existing UG mine. Smelter to be expanded,new concentrator & hydrometallurgical plants to be built. Additional 1.8Mtpy of Concs and 515kt cathode. Expansion would be a progressive development with construction activity over a period of 11 years. An Identification Phase Study is being conducted to identify all possible mining methodes and less capital intensive designs.	15	15	15	15	15	15	
Osborne Copper/Gold	Chinova Resources	Concentrates	Operating	OP, UG	1995		24	Au	Concentrator started June 1995. Ivanhoe Mines Australia acquired the mine in 2010 from Barrick Gold Corp. Stoped producing in 2010 and restarted in Feb 2012. Ore in the initial mine plan to be sourced from the Osborne, Kulthor and Starra 276 underground mines and the Osborne open pit. Ivanhoe Mines Australia changed name to Chinova Resources Ltd. Company was acquired by Shanxi Donghui Coal Coking & Chemicals Group Co. Ltd in 2013.	8	20	20	20	20	20	
Pilbara	Venturex Resources	Concentrates	Developing	OP	2015		25	Zn	Former Panorama project. Capacity 20ktpy Cu in concs. Mine life 7.5 years. 25% Cu conc. Venturex Resources bought project from CBH Resources in 2011.				5	20	20	20
Port Pirie	Nyrstar	SX-EW	Operating		1984				By-product. Expansion to 7kt cathode planned for 2016	4	4	4	4	5	7	

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Prominent Hill	OZ Minerals	Concentrates	Operating	OP, UG	2009		46	Au	Malu Open Pit started Feb09. Ankata underground mine started 2012. Malu Underground starts end 2014. Copper production for Malu Open Pit and Ankata Underground 2015-2018 to be in excess of 95ktpy Cu and 95kozpy Au. Additional contribution in excess of 10ktpy from Malu Underground. Mine life extensions: Malu Open Pit 2018 (stockpiles to be treated post 2018), Ankata Underground ~2022, Malu Underground ~2024.	110	90	90	100	110	110	
Radio Hill	Fox Resources Ltd	Concentrates	Operating		2004				Restarted in 2004. Placed on C&M in 2008. In Dec 2011 started pilot-scale operation for precipitation of the metals from the pregnant liquor solution (PLS) generated from the bacterial heap leach process. Fox plans on utilising this to process the nickel and copper mined at Radio Hill.	2	2	2	2	2	2	
Redbank	Redbank Copper Ltd	Concentrates	Operating		2004		25		On "care and maintenance" since 2009 and no exploration activities were conducted recently.	6	6	6	6	6	6	
Renison	Metals X	Concentrates	Operating		2008			Sn	Tin mine closed Oct05 and reopened Jul08. Merch 2010, Metals X sold 50%in its Tasmanian Tin assets to Yunnan Tin-Parksong Group. Project for re-processing metals from 18.957 Mt of tailings @ 0.44% Sn and 0.21% Cu	2	2	2	2	2	2	
Reward/Highway (Thalanga)	Kagara Ltd	Concentrates	Closed	OP	1998	2013		Au	Closed August 2005. Started treating Balcooma ore Sep 06. Kagara went into voluntary administration in H1 2012. All mines placed in C&M. End 2013 company whent into liquidation.	25	25					
Ridgeway	Newcrest Mining Ltd.	Concentrates	Operating		2002			Au	Included in Cadia Valley Operations							
Roseberry	Minmetals	Concentrates	Operating	UG	1936		20	Zn, Pb, Au	Mainly a Zinc mine. Mine life 2024.	2	2	2	2	2	2	
Ruth Well	Fox Resources Ltd.	Unknown Mine	Exploration					Ni	The Ruth Well project has defined resources of 69,000t at 1.00% Ni and 0.87% Cu, and is considered to be prospective for additional nickel-sulphide mineralisation						0	
Savannah	Panoramic Resources Ltd	Concentrates	Operating	OP	2004	2018	5	Ni, Co	In 2012 strong mineralisation intersected below the 900 Fault	5	5	5	5	5	5	
St. Ives	Gold Fields	Concentrates	Operating	UG	1967			Au, Ni	by-product of gold mine	1	1	1	1	1	1	
Telfer	Newcrest Mining Ltd.	Concentrates	Operating	OP, UG	1987			Au	On care & maintenance from 2000 to end 2004. Maximising lower cost UG operation reducing open pit activity.	35	35	25	25	25	25	
The Peak	New Gold Inc.	Concentrates	Operating	UG	1992			Au, Zn, Pb, Ag	Was temporarily closed in 2000.	5	5	5	5	5	5	
Tritton	Straits Resources	Concentrates	Operating	OP, UG	2004	2020	24	Au	Mine life 2020. Expansion to 35kt Cu suspended 1H09 due to maktet conditions but being revaluated again.	24	24	24	24	24	24	
Whim Creek	Venturex Resources	SX-EW	Closed	OP	2005	2009			Mining ceassed Jun 09. Straits Resources sold SX-EW pant to Finders Resources for the Wetar project and sold Whim Creek project to Venturex Resources that will re-evaluate high grade sulphide mineralisation below oxide pit and design a drill program to confirm and extend known resources.						0	
White Range Project	Queensland Mining Corporation Limited	SX-EW	Feasibility	OP					Possible 15-20ktpy cathode for mine life around 10 years. Bought by QMC in 2009 after Matrix Metals Ltd entered voluntary administration. Resource of 4.7Mt @1.1% Cu						0	15
Woodlawn	TriaAusMin Ltd	Concentrates	Developing	OP, UG	1979, 2015	1998		Zn, Pb, Ag, Au	To restart production in 2015. Cap 4ktpy Cu in concentrates				2	4	4	4

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Table1: WORLD COPPER MINES PRODUCTION CAPACITIES 2012 To 2017

Thousand metric tonnes copper

Mine	Operator/Owner(s)	Process	Status	Type (1)	Start Up	Closure/ LOM (2)	Concs. Cu %	Other Metals	Short remarks	2012	2013	2014	2015	2016	2017	Project Cap.
Whundo	Fox Resources Ltd	Concentrates	Feasibility	OP					Located 10km south of Radio Hill. Operations ceasing in 1976. Combined Cu-Zn resources of the Whundo and West Whundo deposits are 1,687,000t at 1.10% Cu and 0.94% Zn. Whundo has additional zinc resources of 421,000t at 1.05% Zn.						0	
Azerbaijan			**Operating+Developing**							**1**	**1**	**1**	**1**	**1**	**1**	
Gedabek	Anglo Asian Mining PLC	Concentrates	Operating	OP	2010			Au, Ag	Gold mine. Sulphidisation, Acidification, Recycling and Thickening ('SART') plant for the recovery of the copper and silver dissolved in the leach gold solution. The copper is recovered in the form of a precipitated copper sulphide concentrate by-product, which also contains silver with commercial value. The plant capacity is 1.8 Ktpy copper concentrate.	1	1	1	1	1	1	
Bolivia			**Operating+Developing**							**11**	**11**	**11**	**11**	**11**	**11**	
Corocoro	Korea Resources Corp. 45%, Corporación Minera de Boliviana (COMIBOL) 55%	SX-EW	Operating	UG	2009				Closed 1985. Reopened Oct. 2009. Production capacity of 4ktpy Cu with possibility to expand.	4	4	4	4	4	4	
Don Mario UMZ	Orvana Minerals Corp	Concentrates	Operating	OP	2011	2022	37	Au, Ag, Pb	Brownfield (Lower Mineralized Zone (LMZ) started in 2003 producing gold and was depleted in 2009. Re-started 2Q 2011. Open pit. Mine life: 11 years. Average copper production 7ktpy Cu in concs (37% Cu) during mine life.	7	7	7	7	7	7	
Botswana			**Operating+Developing**							**62**	**70**	**75**	**78**	**63**	**58**	
Botswana			**Exploration+Feasibility**												**0**	**20**
Botswana			**Total Status**							**62**	**70**	**75**	**78**	**63**	**58**	**20**
Maun Project (Boseto)	Discovery Metals Ltd	Concentrates	Operating		2012		40	Ag	Boseto Copper. Production expected end 2011 but delayed to Jun 2012. Capacity at 38ktpy Cu in concs around 40% Cu. Mine life 15Y+. Studies underway for underground mine that will expand mine life to 25Y and annual production to 50ktpy Cu.	10	20	25	38	38	38	
Mowana	African Copper PLC	Concentrates	Operating	OP	2008	2015	21		Former Dukwe mine. Cap 20ktpy Cu but since start-up effective production below 10ktpy Cu affected by circuit bottlenecks and breakdowns. Mine life 7years. Started 3Q 2008. Placed in C&M Jan09. Restarted Sep09.	20	20	20	10			
Phoenix (Tati)	Tati Nickel Mining Co. (Norilsk 85%, 15% Gov.)	Concentrates	Operating	UG	1989	2016		Ni, Co	Includes the Phoenix open pit nickel mine and the Selkirk underground nickel mine closed in 2002. Jul 2013 approved Tati Nickel's action planaiming at maintain concentrate production levels till 2016. In accordance with the plan Tati Nickel will continue exploration drilling at Phoenix deposit and geological exploration of Selkirk deposit. Norilsk informed in Sep 2003, intention to exit international assets in the period 2014-2016.	12	10	10	10	5		
Selebi North	BCL Limited	Concentrates	Operating	UG	1991			Ni	Located near Selebi-Phikwe.	5	5	5	5	5	5	
Selebi-Phikwe (mine)	BCL Limited	Concentrates	Operating	UG				Ni, Co		15	15	15	15	15	15	
Selkirk	Tati Nickel Mining Co. (Norilsk 85%, 15% Gov.)	Concentrates	Feasibility	OP				Ni	Underground mine closed in 2002. Plans to reopen an open pit. Possible capacity 20 ktpy Cu. See note for Phoenix (Tati) mine.						0	20

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Brazil			**Operating+Developing**							**240**	**320**	**360**	**445**	**448**	**478**	**25**
Brazil			**Exploration+Feasibility**											**5**	**30**	**260**
Brazil			**Closed**													
Brazil			**Total Status**							**240**	**320**	**360**	**445**	**453**	**508**	**285**
118 Project	Vale (50%), BNDES (50%)	SX-EW	Feasibility						Capacity 40ktpy Cu.						0	40
Alemão	Vale (67%), BNDES (33%)	Concentrates	Feasibility	UG				Au	Consists of a 5.45 Mtpa ROM underground mine and beneficiation plant. The Alemão ore body is located beneath the Igarape Bahia gold mine final pit and because of that has high gold content. 105 Mt @ 1.51 % Cu and 1.05 g/t Au. Production capacity at 64ktpy Cu. Mine life 21 years.						0	64
Boa Esperança	Mineração Caraiba SA (Glencore plc 28.5%)	Concentrates	Developing	OP	2016				The deposit was discovered by CODELCO in late 2003 by drilling and sold to Mineração Caraiba in 2007.					5	25	25
Chapada	Yamana Gold Inc	Concentrates	Operating	OP	2006	2031	25	Au, Ag	Principally Gold. Expansions in 2009/10 Mine life 2025. Pre-feasibility study underway for Corpo Sul orebody, 260 kilometres from Chapada that is expected to enhance throughput through the blending of this higher grade ore with ore from the main Chapada pit	75	85	85	90	90	90	
Cristalino	Vale (50%), BNDES (50%)	Concentrates	Feasibility	OP				Au	Potential of 90ktpy Cu in concentrates that could feed Sossego concentrator after Sossego exaustion						0	90
Igarape Bahia Phase IV	Vale 67%, BNDES 33%	Concentrates	Feasibility	UG				Au	Potential of 36ktpy Cu in concs. Included in Alemão.						0	36
Jaguarari	Mineração Caraiba SA (Glencore plc 28.5%)	Concentrates	Operating	OP, UG	1979				Jaguarari underground mine and two open pits at Angico and Surubim. All ore treated at the same plant. Produces concentrates and cathodes. SX-EW plant started in 2007 and expected to close in 2015.	30	30	25	25	20	20	
Jaguarari	Mineração Caraiba SA (Glencore plc 28.5%)	SX-EW	Operating	OP, UG	1979	2015			Jaguarari underground mine and two open pits at Angico and Surubim. All ore treated at the same plant. Produces concentrates and cathodes. SX-EW plant started in 2007 and expected to close in 2015.	5	5	5	5			
Salobo	Vale	Concentrates	Operating	OP	2012			Au, Ag, Mo, Co	Salobo I started June 2012, capacity of 100ktpy Cu in concs. Expansion by additional 100ktpy in 1st Half 2014 (Salobo II). 1.12 billion tons of proven and probable reserves, with an average grade of 0.72% Cu and 0.43 grams Au. Possible future expansion (Salobo III) would consist of the construction of a third concentration plant with 12 Mtpy capacity per ton.	10	80	125	205	213	223	
Serrote da Laje	Aura Minerals Inc	Concentrates	Feasibility		2016	2018		Au	Formerly Arapiraca project. Sep2012 released definitive Feasibility Study: open pit mine, sulphide ore, concentrator rate 7 MTpy, producing copper in concentrate with gold credits. Magnetite recovery and oxide ore treatment have been identified as future opportunities. Production of 376Mt Cu and 171,000 ounces of Au over a 13 year mine life. Prod 1st Y:37kt Cu, avg 2 to 12 Y 30kt, 13Y: 8kt. Startup expected in 2016 pending successful completion of financing.					5	30	30
Sossego	Vale	Concentrates	Operating	OP	2004		30	Au	Sossego's mine life could be extended after current open pits exhaustion, through the beneficiation of ores from Sossego underground and satellite ore bodies. In this concept, Cristalino, located 45 km to the east, would come into operation in the future, feeding Sossego's processing plant.	120	120	120	120	120	120	

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UHC	Vale	SX-EW	Closed		2008	2010			Hydrometalurgical pilot test plant to treat Sossego complex ore. Cap 10ktpy Cu. Started Dec08, closed Jun10.							
Bulgaria			**Operating+Developing**							**118**	**118**	**120**	**121**	**121**	**121**	
Assarel Medet	Asarel Invest Co. (75% VA Copper Invest)	Concentrates	Operating	OP	1977			Au, Ag, Pyrite	Annual production at around 200kt concs @ 25% Cu	50	50	50	50	50	50	
Bradtze/ Strandja (Malko Turnovo Conc.)	Polimet	Concentrates	Operating	OP, UG	1950			Mo, W, Ag, Au, Pyrite		2	2	2	2	2	2	
Chelopech	Dundee Precious Metals	Concentrates	Operating	UG	1950		16	Au, Ag, Se, Te, As, Co, Pyrite	Expansion above 20ktpy in 2012. Supply all concentrates to smelter in Namibia. High arsenic concentrate grading approximately 16.5% Cu (basis 2011)	21	21	23	23	23	23	
Elatsite	Elatsite Copper Co.	Concentrates	Operating	OP	1981			Mo, Ag, Au		45	45	45	45	45	45	
Zidrovo (Burgas)	Burgaskii Mines Ltd.	Concentrates	Operating	UG	1980					1	1	1	1	1	1	
Canada			**Operating+Developing**							**621**	**697**	**765**	**793**	**790**	**787**	**49**
Canada			**Exploration+Feasibility**										**5**	**75**	**186**	**795**
Canada			**Closed**							**19**	**7**					
Canada			**Total Status**							**640**	**704**	**765**	**798**	**865**	**973**	**844**
Afton Ajax	KGHM 80%, Abacus Mining & Exploration Corp 20%.	Concentrates	Feasibility	UG	1978, 2015	1997		Au, Ag	Mine started 1978, closed 1997. Project to restart the mine. Joint venture signed with KGHM in 2010 .Average production at 50ktpy Cu over 23 years. Proven & Probable mineral reserves of 3 bil lbs Cu. Startup expected 2015				5	50	50	50
Bear Copper	Imperial Metals Corp.	Unknown Mine	Exploration					Mo	Exploration is not currently being conducted at Bear						0	
Bracemac-McLeod Mine	Glencore plc (65%)	Concentrates	Operating		2013	2017		Zn	Capacity 10ktpy Cu and 80ktpy Zn		3	10	10	10	10	
Brunswick No.12	Glencore plc	Concentrates	Closed	UG	1964	2013		Ag, Zn, Pb	Principally a Pb/Zn mine	9	4					
Carmacks	Copper North Mining Corp.	SX-EW	Feasibility	OP	2016			Au, Ag, Mo	Capacity 15ktpy Cu. Mine life 7years. Starts 1Q2016					7	15	15
Clipperton (Offshore)	DeepGreen Resources Inc.	SX-EW	Feasibility		2020			Ni, Co, Mo, Mn	Canadian company exploring Cu-Ni seafloor nodules in the International Waters mid-way between Hawai and Mexico (4.5Km deep). Possible annual production of 50kt Cu. Mine life 50 years. Oxide ore. 500 million tonnes (dry) @ 1.3% Ni, 1.1% Cu, 29% Mn, 0.2% Co & 0.05% Mo. Could be producing by 2020. To produce metal (included under Sx-Ew process)						0	50
Casino	Western Copper Corp.	Concentrates	Feasibility	OP	2019		28	Au, Mo	100ktpy from Y1 to Y4, then 78ktpy Cu in concs. Mine Life 22Y. Open pit.						60	100
Copper Rand	Campbell Resources Inc.	Concentrates	Operating	UG	1959			Au	Closed 1997, restarted Q1 2005. Includes Merrill Island pit. Put on C&M in Dec08.	10	10	10	10	10	10	
										on C&M						
Duck Pond	Teck Resources Ltd	Concentrates	Operating	UG	2007			Pb, Zn, Ag, Au	Open pit mining from satellite sources supplements underground production to end of mine life early 2015. Engineering study for underground extension at depth in progress.	15	14	12	5			
Fond du Lac	Pure Nickel Inc	Unknown Mine	Exploration					Ni							0	

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Galore Creek	Teck Resources Ltd 50%, Nova Gold Resources 50%	Concentrates	Feasibility	OP				Au, Ag	Construction suspended in 2007 as preliminary work indicated higher than estimated costs. Possible prod 200ktpy Cu. New feasibility completed in July 2011. Challenging topography and weather. 12,000 meter drill program completed in 2013						0	200
Giant Copper	Imperial Metals Corp.	Unknown Mine	Exploration					Au, Ag							0	
Gibraltar	Taseko Mines Ltd. 75%, Japanese Consortium 25%	Concentrates	Operating	OP	1972			Mo	Closed in 1992. Reopened Nov04. SX-EW started Dec 06. Exp to 82Kt by end 2012. 25% of Gibraltar mine sold in March 2010 to a Japanese Consortium (Sojitz Corporation 50%, Dowa Metals & Mining Co., Ltd. 25%, Furukawa Co., Ltd. 25%) 27 years of mine life. SX-EW plant temporarily closed in 2013 restarting in 2014	50	82	82	82	82	82	
Gibraltar	Taseko Mines Ltd. 75%, Japanese Consortium 25%	SX-EW	Operating	OP	1972			Mo	Closed in 1992. Reopened Nov04. SX-EW started Dec 06. Exp to 82Kt by end 2012. 25% of Gibraltar mine sold in March 2010 to a Japanese Consortium (Sojitz Corporation 50%, Dowa Metals & Mining Co., Ltd. 25%, Furukawa Co., Ltd. 25%) 27 years of mine life. SX-EW plant temporarily closed in 2013 restarting in 2014	4	4	4	4	4	4	
Granduc (project)	Castle Resources Inc.	Concentrates	Feasibility	UG			29		Preliminary Economic Assessment starting in 2013. Feasibility in 2014/20145. Could produce 36-45 ktpy Cu.						0	40
Highland Valley	Teck Resources Ltd (97.5%)	Concentrates	Operating	OP	1962	2027		Au, Ag, Mo	Output lower in 08/09 during work to extend pit. Geotechnical issues reducing prod in 09/10 as access to some ore areas restricted. In 3Q11, completion of 2year waste stripping & buttress placement project on the east wall of the Valley pit allowing higher grade ore to be sourced. New flotation and pebble crushing plants to improve Cu recovery by 2% and avg mill throughput by 10% commissioned in 3Q2013 with the full throughput benefit in 2014. Drilling activities continuing in the Bethlehem area and engineering studies started on the Bethlehem Phase 1 project targeting an initial 100 Mt of additional ore reserves. Mine life to 2027 with potential to extend by an additional 10-20 yrs.	120	120	130	130	130	130	
Huckleberry	Imperial Metals Corp. (50%) , Japanese Consortium (50%)	Concentrates	Operating	OP	1997	2021		Mo, Au, Ag	JAn12, approved the Main Zone Optimization (MZO) plan to extend the life of mine to 2021. This seven year extension MZO plan is based on the development of a mineral reserve (beneath the original Main zone pit) of 39.7 million tonnes grading 0.343% copper. Production averaging 20ktpy Cu from 2011 to 2019. Production in 2020 and 2021 will be reduced as low grade stockpiles are milled.	19	20	20	20	20	20	
Hushamu (Island Copper)	NorthIsle Copper and Gold Inc.	Concentrates	Feasibility	OP				Au	To complete pre-feasibility in 2014-2015						0	
Izok Lake	Minmetals	Concentrates	Feasibility	OP, UG				Zn, Pb, Ag, Au	Feasibility started in 2012 and expected in 2014. Pre-feasibility indicates possible annual production of 50ktpy Cu. To produce also zinc, lead, silver and gold.						0	50
Kemess South	Aurico Gold Inc	Concentrates	Closed	OP	1998	2011		Au	Kemess South closed in March 2011. Northgate Minerals Corp. Was acquired by Aurico Gold Inc. The company is preparing to file preliminary economic assessment for Kemess North which is expected to have a 12-year mine life.							
Kidd Creek	Glencore plc	Concentrates	Operating	UG	1966	2021		Ag, Zn		50	50	50	50	50	50	

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KSM (Kerr-Sulphurets-Mitchell)	Seabridge Gold Inc	Concentrates	Feasibility	OP				Au, Ag, Mo	Reserves: 38.2 million ounces Au and 10billion pounds Cu. Preliminary results envisages an open-pit mining operation to produce a combined Au/Cu/Ag concentrate avg 25% Cu. A separate Mo concs and gold-silver dore to be produced as well. 55 years mine life. Average annual production of 88kt in years 1-7 and 67kt LOM.						0	88
Kutcho	Capstone Mining Corp.	Concentrates	Feasibility	UG	2016			Zn, Ag, Au	Expected to start in 2016. Mine life 12 years. Capacity 16ktpy Cu.					8	16	16
La Ronde	Agnico Eagles Mines	Concentrates	Operating	UG	1988	2026		Au, Ag, Zn	Principally a Au operation. Mine life 2026	8	8	8	8	8	8	
Lac des Iles	North American Palladium	Concentrates	Operating	UG	1993			Pd, Pt, Au, Ni	Principally a PT group operation.	3	3	3	3	3	3	
Langlois	Nyrstar	Concentrates	Operating	UG	1996	2024		Zn, Ag, Au	Restarted 2007 after having been on C&M. Put in C&M in Nov08. Resarted end 2011. Previous owner Breakwater Resources was acquired by Nyrstar in August 2011. The LOM of the Langlois mine is currently of about 10 years (based 2014) with promising exploration opportunities which could extend this by another 5 years.	2	2	2	2	2	2	
Marathon	Still water Mining Company 75%, Mitsubishi Corp. 25%	Concentrates	Feasibility	OP				PGM, Au, Ag	91 million ore tonnes grading 0.246% copper, 0.832 g/t palladium and 0.237 g/t platinum. Mine life 11.5 years. Possible annual production of 17kt Cu in concs. A decision to proceed with project construction requires receipt of a positive Environmental Assessment finding by the joint review panel, receipt of other necessary permits and government approvals, a determination that the economics of the project are acceptable to each of the partners and receipt of firm financing commitments.						0	17
Maskwa	Mustang Minerals Corp.	Concentrates	Feasibility	OP				Ni	Feasibility study underway. Planned to be mined over 7 years.						0	
Ming (Rambler)	Rambler Metals and Mining	Concentrates	Operating	UG	2012		28	Zn	Old mine dewatered in Jul08. Capacity 18ktpy Cu. Mine life 10Y. Project suspended in Jan09 due to financial crisis but restarted and 1st prod was in May2012. Concentrate offtake agreement with Transamine.	3	10	18	18	18	18	
Minto	Capstone Mining Corp.	Concentrates	Operating	OP, UG	2007			Au, Ag	Started June 2007. Expansion under review. Pre-feasibility Study on Phase V Expansion (to extend mine life to 2020) finalized in March 2011.	30	30	30	30	30	30	
Montcalm	Glencore plc	Concentrates	Closed	UG	2005	2009		Ni, Co	Suspended since June 2009.							
Mt. Milligan	Thompson Creek Metals Co. Inc.	Concentrates	Operating	OP	2013		25	Au, Ag, Mo	Development was deferred for reevaluation. Nov10 started construction. Mine life 22Y. Started August 2013 and commercial porduction in 4Q 2013. LOM Capacity of 37ktpy Cu with production at 40ktpy in the first 6 years.		2	30	40	40	40	
Mt. Polley	Imperial Metals Corp.	Concentrates	Operating	OP	1997	2016		Au	Was idle in 2001 and restarted March 2005. The current reserve estimate provides for a mine life to the 2016 third quarter.	20	20	20	20	10		
Myra Falls	Nyrstar	Concentrates	Operating	UG	1966			Au, Ag, Zn, Pb	Previous owner Breakwater Resources was acquired by Nyrstar in August 2011.	5	5	5	5	5	5	
New Afton	New Gold Inc.	Concentrates	Operating	UG	2012		35	Au, Ag	Started production in July 2012.. 12Y mine life. Cap @35ktpy Cu.	10	35	35	35	35	35	
Perseverance	Glencore plc	Concentrates	Closed	UG	2008	2013		Zn, Ag, Au	Zinc mine. Started Jul 08. Cap 8 kt Cu in concs. Mine life 5.5 yrs.	10	3					
Prosperity (Fish Lake)	Taseko Mines Ltd.	Concentrates	Feasibility	OP	2016			Au	Potential for 45ktpy Cu in concs. In Nov 10 Federal Minister of Environment blocked development due to environmental issues and company submited revised project in June 2011. Authorizations delaying project development.. 20Y mine life.					10	45	45
Raglan	Glencore plc	Concentrates	Operating	OP, UG	1998	2034		Ni		8	8	8	8	8	8	

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Mine	Operator/Owner(s)	Process	Status	Type (1)	Start Up	Closure/ LOM (2)	Concs. Cu %	Other Metals	Short remarks	2012	2013	2014	2015	2016	2017	Project Cap.
Red Chris	Imperial Metals Corp. and Jiangxi Copper Mining Co. (joint venture)	Concentrates	Developing	OP	2014		27	Au	Planned cap around 40kt Cu in concs at 27% Cu. Mine life 28 years. Expected to start up in Q2 2014 delayed to 3Q 2014.			5	30	40	40	40
Redstone	Copper North Mining Corp.	Concentrates	Exploration	UG				Ag	Sediment-hosted stratiform copper deposit.						0	
Similco (new)	Copper Mountain Mining Corp. 75%, Mitsubishi Materials Corp 25%	Concentrates	Operating		2011				Copper Mountain Project. Old mine restarted in July 2011. MOU with Mitsubishi Materials Corp. to develop the mine. Resource of approximately 5 billion pounds of copper. Production capacity at 47ktpy Cu in concs.	30	40	47	47	47	47	
Shaft Creek	Teck Resources Ltd 75%, Copper Fox 25%	Concentrates	Feasibility	OP	2020		28	Au, Ag, Mo	Teck backed into property as operator of joint venture in July 2013. Feasibility completed in Dec 2012 by Copper Fox . Proven and Probable Mineral Reserves total 940.8MTcontaining 5.6 billion lbs Cu. To produce copper-gold-silver concentrate (@28% Cu) and molybdenum concentrate. Average annual production capacity of 124kt Cu in Y1-5 and 105Kt LOM. Mine life 21Y.						0	124
Sudbury Area Mines	Glencore plc	Concentrates	Operating	UG	1929	2021		Ni, Co, Pg, Ag, Au	Expansion of Fraser Morgan in Sudbury in 2013, adding 2,000 tonnes of extra copper production each year. The current LOM plan based on reserves extends to the end of 2021. Significant undeveloped mineral resources and exploration potential provide an opportunity to extend mine life well beyond 2021.	36	38	38	38	38	38	
Thompson (Manitoba) / Sudbury (Ontario)	Vale Inco Ltd.	Concentrates	Operating	UG	1900			Co, Ni, Ag, Au, PGM	Totten nickel mine reopned 2013. Cap 7.7ktpy Ni and 10ktpy Cu	115	115	120	120	120	120	
Troilus	First Quantum Minerals Ltd	Concentrates	Closed	UG	1988	2010		Ag, Au, Zn	Reached the end of its mining life in June 2010 and closed.							
Trout Lake/ Flin Flon	Hudbay Minerals Inc.	Concentrates	Operating	UG	1982			Zn, Au, Ag	Trout Lake closed in Jun 2012. Flin Flon continues producing	40	35	35	35	35	35	
Tulsequah Chief	Chieftain Metals Corp.	Concentrates	Developing	UG	2016			Zn, Pb, Au, Ag	To start production in mid 2016. Capacity 9ktpy Cu					2	9	9
Victoria	KGHM Polzka Miedz S.A.	Concentrates	Feasibility	UG	2023	2034		Ni, Pt, Pd, Au	Reserves 14.9 Mt @2.4% Cu, 2.5% Ni, 7.4 g/t TPM. To build the mine in 4 stages. A decision on the economic viability of the project would be made following the conclusion of definition drilling in 2018 and startup could happen in 2023. KGHM International will build and operate Victoria as the sole owner of the project and Vale will receive a royalty and off-take on all future production from the project.						0	
Voiseys Bay	Voiseys Bay Nickel Company (Vale Inco Ltd)	Concentrates	Operating	OP	2005			Ni, Co	Mine life 14 years.	38	38	38	38	38	38	
Wolverine	Yukon Zinc Corp.	Concentrates	Operating	UG	2011			Zn, Pb, Au, Ag	Started early 2011. Mine life 10Y. In July, 2008 Jinduicheng Molybdenum Group Co. Ltd. and Northwest Nonferrous International Investment Company Ltd. acquired Yukon Zinc Corporation.	5	5	5	5	5	5	

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Table1: WORLD COPPER MINES PRODUCTION CAPACITIES 2012 To 2017

Thousand metric tonnes copper

Mine	Operator/Owner(s)	Process	Status	Type (1)	Start Up	Closure/ LOM (2)	Concs. Cu %	Other Metals	Short remarks	2012	2013	2014	2015	2016	2017	Project Cap.
Chile			**Operating+Developing**							**6,232**	**6,287**	**6,270**	**6,361**	**6,650**	**6,716**	**104**
Chile			**Exploration+Feasibility**										**5**	**15**	**34**	**1,391**
Chile			**Total Status**							**6,242**	**6,293**	**6,270**	**6,366**	**6,665**	**6,750**	**1,495**
Amalia (Catemu)	CEMIN	SX-EW	Operating		1973, 2007				Built by Enami in 1973 as purchasing power, for the treatment of insoluble copper minerals. In 1982, was acquired by the Mining Company Limited Catemu, operating continuously until 1999. It was reopened in 2007.	14	15	15	14	14	14	
Andacollo	Teck Resources Ltd 90%, ENAMI 10%	concentrates	Operating	OP	1996			Au	Concentrate production started 1Q10, SX-EW ends in 2014. Feasibility study to examine adding an additional SAG mill, ball mill and other associated plant and equipment aimed at increasing annual production of contained copper to 120,000 tonnes. Copper grades declining, but above reserve grade until 2018	75	75	75	70	70	70	
Andacollo	Teck Resources Ltd 90%, ENAMI 10%	SX-EW	Operating	OP	1996			Au	Concentrate production started 1Q10, SX-EW ends in 2014. Feasibility study to examine adding an additional SAG mill, ball mill and other associated plant and equipment aimed at increasing annual production of contained copper to 120,000 tonnes. Copper grades declining, but above reserve grade until 2018	5	5	5				
Andina	Codelco	Concentrates	Operating	OP, UG	1970	2085		Mo, Ag, Au	Andina phase I (PDA) expansion to 300ktpy Cu in 2010 . Low grade sulphides in 2019. Nueva Andina phase II 244 (PNA) additional 350ktpy in 2022. Total prod around 600ktpy Cu. In 2010-2013 found 3 mineralisations, La Americana, Cerro Negro and Copa Sur, in Andina division with a potencial of 600, 1000 and 75 million tons copper respectivelly.	300	300	300	300	300	300	
Antucoya	Antofagasta Plc 70%, Marubeni Corporation 30%	SX-EW	Developing	OP	2015	2035			Resources of 1.5 billion tonnes @ 0.27% copper. Greenfield project expected to produce around 85ktpy cathode in 1st 5 years. Mine lfe 20Y. Startup was expected for 2014 but delayed to 1H 2015 as in Dec 2012 company decided to temporarily suspend development to enable review of the project given potential levels of cost escalation. In 2013 decidded to proceed with project development. Will use sea water.				30	85	85	85
Berta	Coro Mining Corp.	SX-EW	Developing	OP	2015				5-10k tpy Cu open-pit, heap-leach project. Pregnant Leach Solution (PLS)/water pipeline to third party SXEW plant. Mine located at 33 km from Anglo American's Manto Verde copper mine. Coro has identified potential for additional copper oxide resources elsewhere on the property, and in the surrounding district.				1	5	7	7
Brahma	Condor Resources Inc	Unknown Mine	Exploration					Au	In Aug 2013 Condor signed an agreement giving MMG a 270 day exclusivity period to conduct a mandatory due diligence program at Brahma/Austral, which due diligence includes the airborne survey, and follow up mapping and sampling. If MMG decide to proceed with an option agreement, they will be required to complete cumulative exploration expenditures of US$7 million, and complete a Preliminary Economic Assessment, both within 6 years of execution of the option agreement, in order to earn a 70% interest in Brahma/Austral. Feb 2014 MMG announced not to be proceeding with the option agreement						0	
Candelaria	Freeport-McMoRan Copper & Gold Inc. (80%), Sumitomo Metal Mining (l5%), Sumitomo Corp. (5%)	Concentrates	Operating	OP	1994			Au, Ag	Reduced mining rates in Jan09 due to weak market conditions. Back to normal levels in 2010. Desalination plant completed in 2013	150	150	150	120	120	120	

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Thousand metric tonnes copper

Mine	Operator/Owner(s)	Process	Status	Type (1)	Start Up	Closure/ LOM (2)	Concs. Cu %	Other Metals	Short remarks	2012	2013	2014	2015	2016	2017	Project Cap.
Caspiche	Exeter Resources	Concentrates	Feasibility	OP	2017			Au, Ag	In Sep 2013 adopted new strategy: a staged mine plan, starting with open pit mining of the oxide gold zone and transitioning to underground mining of the gold copper zone. Proven and probable ore reserves of 1.091 billion tonnes containing 19.3 million ounces gold, 4.62 billion pounds copper, 41.5 million ounces silver. Possible average annual production over the 19 year mine life of 696,000 ounces gold, 110 Mt copper and 844,000 ounces silver. PEA completed May 2014						0	110
Caserones	Pan Pacific Copper Co.	Concentrates	Operating	OP	2013 / 2014	2040		Mo	Former Regalito Project. Average production during initial 5 years: 150kt Cu in concentrates and 30kt SXEW cathodes. Avg production LOM (28 years): 110ktpy Cu in concs and 10kt cathodes. Cathode production started Mar 2013 with capacity to be reached in 2015. Concentrate production in 2014.			50	120	150	150	
Caserones	Pan Pacific Copper Co.	SX-EW	Operating	OP	2013 / 2014	2040		Mo	Former Regalito Project. Average production during initial 5 years: 150kt Cu in concentrates and 30kt SXEW cathodes. Avg production LOM (28 years): 110ktpy Cu in concs and 10kt cathodes. Cathode production started Mar 2013 with capacity to be reached in 2015. Concentrate production in 2014.		10	10	20	30	30	
Cerro Casale	Barrick Gold Corp. (75%), Kinross Gold Corp. (25%)	Concentrates	Feasibility	OP	2020			Au	3 year construction period, 20 year mine life. Possible production of 110ktpy Cu in concs.						0	110
Cerro Colorado	BHP Billiton (100%)	SX-EW	Operating	OP	1994				Mine life until 2021 but currently evaluating the extend of hypogene mineralisation that may support further extention options.	80	80	80	70	70	70	
Cerro Dominador	Copec Group	SX-EW	Operating		2004				Copec, a diversified Chilean Group, aquired Dominador and Diego de Almagro from the Callejas group in 2010	5	5	5	5	5	5	
Cerro Negro	Workers cooperative	Concentrates	Operating	UG	1944					5	5	5	5	4	4	
Cerro Negro	Workers cooperative	SX-EW	Operating	UG	1944					6	6	6	6	6	6	
Codelco Norte	Codelco	Concentrates	Operating	OP	1915			Mo, Au, Ag	Codelco Norte formed from 2002 to 2010 included Chuquicamata and Radomiro Tomic (aggregated data in this period, before 2002 and after 2010 only data for Chuqicamata). Nov2010 split of Codelco Norte Division into two independent divisions: Chuquicamata and Radomiro Tomic. Chuqi underground project by 2018/2019 (366ktpy Cu)	400	400	400	400	400	400	
Codelco Norte	Codelco	SX-EW	Operating	OP	1915			Mo, Au, Ag	Codelco Norte formed from 2002 to 2010 included Chuquicamata and Radomiro Tomic (aggregated data in this period, before 2002 and after 2010 only data for Chuqicamata). Nov2010 split of Codelco Norte Division into two independent divisions: Chuquicamata and Radomiro Tomic. Chuqi underground project by 2018/2019 (366ktpy Cu)	50	50	50	50	50	50	
Collahuasi	Anglo American (44%), Glencore plc (44%), Mitsui + Nippon (12%)	Concentrates	Operating	OP	1998			Mo, Ag, Au	Phase I expansion of 19kt in 2011, Phase II of 20kt in 2014. Phase III expansion of additional 469kt not yet appoved. Prefeasibility study for Phase III envisages construction of one or two new grinding lines, allowing production to rise to 800ktpy with a single line expansion, and to more than one million tonnes with both lines. Measured, Indicated and Inferred Resource at Dec 2012 are around 73Mt copper.	480	480	490	500	500	500	

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Table1: WORLD COPPER MINES PRODUCTION CAPACITIES 2012 To 2017

Thousand metric tonnes copper

Mine	Operator/Owner(s)	Process	Status	Type (1)	Start Up	Closure/ LOM (2)	Concs. Cu %	Other Metals	Short remarks	2012	2013	2014	2015	2016	2017	Project Cap.
Collahuasi	Anglo American (44%), Glencore plc (44%), Mitsui + Nippon (12%)	SX-EW	Operating	OP	1998			Mo, Ag, Au	Phase I expansion of 19kt in 2011, Phase II of 20kt in 2014. Phase III expansion of additional 469kt not yet appoved. Prefeasibility study for Phase III envisages construction of one or two new grinding lines, allowing production to rise to 800ktpy with a single line expansion, and to more than one million tonnes with both lines. Measured, Indicated and Inferred Resource at Dec 2012 are around 73Mt copper.	40	30	30	30	30	30	
Cristal	Condor Resources Inc.	Unknown Mine	Exploration					Mo	In Oct 2012, completed a definitive agreement with BHP Billiton under which BHP Billiton have an exclusive option to earn 65% ownership by completing cumulative exploration expenditures of US$18.0 million over four years. The Agreement stipulates a mandatory first year work commitment of US$500,000, which includes an initial cash payment of US$60,000. BHP Billiton has the option to extend the initial earn-in period ending on Oct 5, 2016, to Oct 5, 2017 by making a one-time cash payment to the Company of US $300,000. In late 2012, BHP Billiton conducted an airborne geophysical survey						0	
Diego de Almagro	Can-Can (Copec Group)	Concentrates	Feasibility		2015			Au	OCG deposit with reserves estimated at 300,00 tons copper and 27,000 oz. Gold. Original plans included oxides and concentrating sulfides to produce 11ktpy SX-EW cathodes and 22ktpy copper concentrate.				5	15	22	22
Diego de Almagro SX-EW	Can-Can (Copec Group)	SX-EW	Feasibility		2017			Au	IOCG deposit with reserves estimated at 300,00 tons copper and 27,000 oz. Gold. Original plans included oxides and concentrating sulfides to produce 11ktpy SX-EW cathodes and 22ktpy copper concentrate. Phase I SX-EW starts in 2014, concentrates in 2015.						2	11
Dos Amigos	CEMIN	SX-EW	Operating							9	9	9	9	9	9	
El Abra	Codelco (49%), Freeport-McMoRan Copper & Gold Inc. (51%)	Concentrates	Operating	OP	1996				In 2011 started production from its sulfide ores, which is replacing the depleting oxide copper production. The Sulfolix leach pads deferred to 2019. Possible development of a large sulfide deposit to extend mine life by over 20 years with a production of 300ktpy Cu in concentrates to replace depleting cathode production. Future investments will be dependent on technical studies, economic factors and global copper market conditions.						0	
El Abra	Codelco (49%), Freeport-McMoRan Copper & Gold Inc. (51%)	SX-EW	Operating	OP	1996				In 2011 started production from its sulfide ores, which is replacing the depleting oxide copper production. The Sulfolix leach pads deferred to 2019. Possible development of a large sulfide deposit to extend mine life by over 20 years with a production of 300ktpy Cu in concentrates to replace depleting cathode production. Future investments will be dependent on technical studies, economic factors and global copper market conditions.	160	160	160	150	140	130	
El Espino	Sociedad Punta del Cobre (Pucobre) 51%, Explorator Resources 49%	SX-EW	Feasibility		2018				Possible production of 40ktpy cathode. Resources 145Mt grading 0.55% Cu						0	40
El Bronce de Atacama (Kozan)	Nittetsu Mines (60%), Inversiones Errazuriz (40%)	Concentrates	Operating	UG	2003	2016		Au		15	10	10	9	5	5	

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Thousand metric tonnes copper

Mine	Operator/Owner(s)	Process	Status	Type (1)	Start Up	Closure/ LOM (2)	Concs. Cu %	Other Metals	Short remarks	2012	2013	2014	2015	2016	2017	Project Cap.
El Morro	Goldcorp 70%, New Gold Inc. 30%	Concentrates	Feasibility	OP	2019				New Gold acquired Xstrata Copper's 70% interest Jan10, then sold to Goldcorp in Mar10. Open pit. Proven and probable mineral reserves total 537 Mt at 0.52% Cu and 0.49gpt gold (6.1 billion pounds copper). LOM average annual production at 130kt Cu with peak prod at 160kt Cu. Mine life 17Y. Secured environmental permit in oct 2013. Supreme Court halted project in Nov 2013 but gave go ahead in May 2014.						0	130
El Relincho	Teck Resources Ltd	Concentrates	Feasibility	OP	2019			Mo	Feasibility study indicates average production over 21 years mine life of 207ktpy Cu and 5.1Kt Mo.						0	207
El Soldado	Anglo American (100%)	Concentrates	Operating	UG	1942				SX-EW production ended in 2013. Concentrate production continues.	50	50	40	35	35	35	
El Soldado	Anglo American (100%)	SX-EW	Operating	UG	1942				SX-EW production ended in 2013. Concentrate production continues.	2	1					
El Teniente	Codelco	Concentrates	Operating	UG	1905			Mo	Pilar Norte higher grade area started 2010 to offset decrease in production of other areas. NNM-Nuevo Nivel Mina project in 2018 to extend mine life for +50 years and to maintain capacity at around 430ktpy Cu. Further expansion options possible. En 2013 discovered a new orebody, La Huifa, at 3km from El Teniente with a potencial of 200 Mt @ 0.8-1% Cu.	440	440	440	390	390	400	
El Teniente	Codelco	SX-EW	Operating	UG	1905			Mo	Pilar Norte higher grade area started 2010 to offset decrease in production of other areas. NNM-Nuevo Nivel Mina project in 2018 to extend mine life for +50 years and to maintain capacity at around 430ktpy Cu. Further expansion options possible. En 2013 discovered a new orebody, La Huifa, at 3km from El Teniente with a potencial of 200 Mt @ 0.8-1% Cu.	3	3	3	3	3	3	
El Tesoro / Encuentro Oxides	Antofagasta Plc (70%), Marubeni Corporation (30%)	SX-EW	Operating	OP	2001	2024			2 OP mines feeding a heap-leach and a run-of-mine ("ROM") leaching operation. Inclusion of material from Mirador oxide deposit improving production to aprox 100ktpy from Q4 2011 to 2014. In 1H2016 starts Encuentro Oxides project, OP mine to use spare capacity at El Tesoro SX-EW plant, LOM 8 years, capacity 50ktpy Cu that will enable total production capacity to be maintained at around 100ktpy. In June 2014 announced the merger of Esperanza and El Tesoro into a single company, Minera Centinela, and expects this to be legally completed during 4Q14	100	100	95	95	100	100	
Escondida	BHP Billiton (57.5%), Rio Tinto Corp. (30%), Japan Escondida (12.5%)	Concentrates	Operating	OP	1991			Au, Ag	Norte started Oct 05. Sulfide leach started June 2006. Mine life 2040. Investments to sustain production levels & increase life of mine: Organic Growth 1 Project replaces the Los Colorados concentrator with a new 152,000 tpd plant in mid 2015 increasing total production to 1.27 Mt, Oxide Leach Area Project ($0.2bn) a new dynamic leaching pad and mineral handling system in 2014 maintaining oxide leaching capacity.New desalination facility to ensure continued water supply to Escondida in 2017	900	900	750	800	1,000	1,000	

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Thousand metric tonnes copper

Mine	Operator/Owner(s)	Process	Status	Type (1)	Start Up	Closure/ LOM (2)	Concs. Cu %	Other Metals	Short remarks	2012	2013	2014	2015	2016	2017	Project Cap.
Escondida	BHP Billiton (57.5%), Rio Tinto Corp. (30%), Japan Escondida (12.5%)	SX-EW	Operating	OP	1991			Au, Ag	Norte started Oct 05. Sulfide leach started June 2006. Mine life 2040. Investments to sustain production levels & increase life of mine: Organic Growth 1 Project replaces the Los Colorados concentrator with a new 152,000 tpd plant in mid 2015 increasing total production to 1.27 Mt, Oxide Leach Area Project ($0.2bn) a new dynamic leaching pad and mineral handling system in 2014 maintaining oxide leaching capacity.New desalination facility to ensure continued water supply to Escondida in 2017	320	320	300	300	300	300	
Esperanza	Antofagasta Plc (70%), Marubeni Corporation (30%)	Concentrates	Operating	OP	2010	2030	27	Au, Ag	Started Nov 2010. Avg prod first 10 years 700ktpy concs (191kt Cu). Esperanza ore mine life 2030. Pre-Feasibility for Centinella District Development which approach is to construct a new concentrator plant of 90 ktpd throughput processing ore from Esperanza Sur and the Encuentro sulphide deposits. Requires an expansion of Esperanza's port and installation of a new seawater pumping system (150 km long). LOM 35 years, startup production by 2019, with a capacity 140ktpy Cu at new district concentrator and 145ktpy Cu at Esperanza plant. In June 2014 announced the merger of Esperanza and El Tesoro into a single company, Minera Centinela, and expects this to be legally completed during 4Q14	180	180	180	190	190	190	
Filipina Grande	Tamaya Resources	Unknown Mine	Exploration						Exploration stopped as Tamaya went into bankruptcy in 2008						0	
Franke	KGHM	SX-EW	Operating	OP	2009				Bought from Centenario Copper in April 2009. Started end 2Q09. Mine life 8Y. Problems with subcontractor in 2010. KGHM aquired Quadra Mining Ltd end 2011.	17	17	17	17	17	17	
Gabriela Mistral (Gaby)	Codelco	SX-EW	Operating	OP	2008				Started April 2008. Cap 150ktpy Cu. Fase II expansion to 170ktpy to be reached in 2018. As of 1Jan 2013, Minera Gaby transformed in a new division of Codelco: División Gabriela Mistral	150	150	150	150	150	150	
Humito	China Yunnan Copper Australia Limited	Unknown Mine	Exploration					Au	Candelabro Porphyry Copper JV with Rio Tinto. Caramasa and Palmani Porphyry Copper prospects and Humito.						0	
Inca de Oro	PanAust 66%, Codelco 34%	Concentrates	Feasibility	OP	2020			Au	Codelco sold 66% of the project early 2010. Feasibility study mid 2012 concluded that the cost profile after the first five years of production needed to be improved for Project to be economically robust. Potential to improve through evaluation of Inca oxide resources and nearby deposits. Pre-feasibility study completed by Codelco, indicated potential for OP mining, cap 50ktpy Cu in concs, over +10Y mine life. revising workplan in 2014.						0	50
Ivan/Zar	Compania Minera Milpo	SX-EW	Closed	OP	1995	2013				4	1					
La Cascada (Sagasca)	Haldeman Mining Company	SX-EW	Operating	OP	1972				Was closed 2000. Restarted September 2004.	15	15	10	10	10	10	
Las Luces	Cia. Minera Las Cenizas S.A.	Concentrates	Operating	UG	1996			Ag, Au		9	9	9	9	9	9	
Lomas Bayas	Glencore plc	SX-EW	Operating	OP	1998				Expansion to 75ktpy in 08. 4Q 2012 commissioned Lomas II mine life extension project to keep production at 75ktpy Cu as ore from the new Fortuna de Cobre pit supplement declining volumes from the original pit. Lomas II extends the life by a further 16 years to at least 2028 at existing production levels. Possible development of the copper sulphide deposit located below the current pit to expand prod to 140ktpy Cu in the form of concs & cathodes and extend mine life to 2039. Estimated start in 2017. The project will use of seawater for its operation.	75	75	75	75	75	75	
Lomas Bayas	Glencore plc		Feasibility												10	65

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Mine	Operator/Owner(s)	Process	Status	Type (1)	Start Up	Closure/ LOM (2)	Concs. Cu %	Other Metals	Short remarks	2012	2013	2014	2015	2016	2017	Project Cap.
Los Bronces	Anglo Amercian 75.5%, Mitsubishi Corp. 24.5%	Concentrates	Operating	OP	1925			Mo	Expansion in 4Q11. Exp of 278ktpa contained Cu in first 3 years, 206ktpa avg in first 10 years. Total prod: 490ktpa contained Cu over first 3 years, 410ktpa over first 10 years. Mine life over 30 years (2011) with further expansion potential	340	400	440	440	400	380	
Los Bronces	Anglo Amercian 75.5%, Mitsubishi Corp. 24.5%	SX-EW	Operating	OP	1925			Mo	Expansion in 4Q11. Exp of 278ktpa contained Cu in first 3 years, 206ktpa avg in first 10 years. Total prod: 490ktpa contained Cu over first 3 years, 410ktpa over first 10 years. Mine life over 30 years (2011) with further expansion potential	46	50	50	50	50	50	
Los Helados	NGEx Resources Inc 60%, Pan Pacific 40%	Concentrates	Feasibility	UG			31	Au, Ag	In the Chilean Andes at an elevation of 4,500 metres, 12km from company Josemaria project in Argentina. Copper contained in Indicated Resources 15.26 billion pounds 8.9 M oz Au. Could produce Clean gold-silver rich concentrate grading 30.8% Cu 30.8% Cu, 9.8 g/t Au,51.4g/t Ag; no penalty elements. PEA in 4Q2014.						0	
Los Pelambres	Antofagasta Plc (60%), Nippon Mining (25%), Mitsubishi Materials (15%)	Concentrates	Operating	OP	1992	2033		Ag, Au, Mo	Expansion in 2010. By 1st Half 2018 expansion of throughput from 175ktpd to 205ktpd maximising the use of existing facilities enabling the processing of harder ore and increase ore recovery. Production capacity will be around 418ktpy Cu. Further total throughtput expansion to 330ktpd considered for after 2022. The key issues to this expansion are the taillings disposal, desalinated water supply and power.	430	430	400	400	400	400	
Los Sulfatos	Anglo American	Unknown Mine	Exploration					Mo	Inferred Resource of 1.2 billion tonnes at 1.46% Cu and 0.02% Mo, containing an estimated 17.5 million tonnes of copper (basis 2009 results)						0	
Mina Ministro Hales (Mansa Mina)	Codelco	Concentrates	Operating	OP	2013			As, Mo, Ag, Au	Started 2 H 2013, capacity of 183tpy Cu. This mine will be the first of Codelco's four major structural projects to come on stream, helping to lift output beyond 2Mtpy and offset declining output from existing mines. First stage: 14-year life in which it will explore 289MT of copper minerals. Later on, possible development of underground operation which would extend the mine's life for more than 50 years. Using Outotec new roasting furnace technology to remove arsenic. More than 90% of the As contained in the concentrate can be removed to produce clean copper calcine		40	150	183	183	183	
Mantos Blancos/ Santa Barbara	Anglo American	Concentrates	Operating	UG	1961			Ag	During 2010, the life of Mantos Blancos was extended by five years to 2020	40	40	35	35	35	35	
Mantos Blancos/ Santa Barbara	Anglo American	SX-EW	Operating	UG	1961			Ag	During 2010, the life of Mantos Blancos was extended by five years to 2020	30	30	30	30	30	30	
Mantos de la Luna	Izquierdo Menendez Group	SX-EW	Operating	OP	2006				Started July 2006.	20	20	20	15	15	15	
Mantoverde	Anglo American	SX-EW	Operating	OP	1995	2019			Could start producing concentrates in 2019. The desalination plant completed in 2014 meeting the current water requirements of the	60	60	60	60	60	60	
Michilla	Antofagasta Plc (74.2%), Grupo Cueto (17.8%), Others (8%)	SX-EW	Operating	OP, UG	1970	2015	0		Lince OP closed Jan09 due to low Cu price (UG continued) and restarted early 2010. Michilla's board approved an extension to its mine life from 2012 to 2015 and studies are continuing in respect of a further possible extension to 2018.	38	38	38	30			
Ojos del Salado	Freeport-McMoRan Copper & Gold Inc. (80%), Sumitomo Corp. (20%)	Concentrates	Operating	UG	1970	2014	0	Au, Ag	Restarted June 2004	30	25	25				

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Thousand metric tonnes copper

Mine	Operator/Owner(s)	Process	Status	Type (1)	Start Up	Closure/ LOM (2)	Concs. Cu %	Other Metals	Short remarks	2012	2013	2014	2015	2016	2017	Project Cap.
Payen	Coro Mining Corp.	Unknown Mine	Exploration						In Oct 2013, Coro entered into an option agreement with Minera Freeport-McMoRan South America Limitada, a subsidiary of Freeport McMoRan Copper & Gold, whereby Freeport may acquire a 70% interest in the Payan property by 2016. As part of the agreement, Aurex will fund the underlying option payments and significant annual work commitments. Payen has the potential to host a major copper-gold porphyry deposit, and the Company looks forward to seeing the results of the Aurex exploration program over the coming years. Aurex may complete a Feasibility Study (FS) to NI43-101 standards on a best efforts basis by October 2019						0	
Pascua-Lama (Chile)	Barrick Gold Corp.	Concentrates	Developing	OP				Au, Ag	Orebody located 75% in Chile, 25% in Argentina. Construction started May09 but delayed by Copiapo Court of Appeals rulling in Jul 2013 that company must complete water management system in compliance with the project's environmental permit before resuming construction. In 3Q2013, Barrick decided to suspend the project. The decision to re-start will depend on improved project economics such as go-forward costs, the outlook for metal prices, and reduced uncertainty associated with legal and other regulatory requirements.. Gold prod was expected for mid-2014 with copper later. Reserves of 649.5Mlb Cu. Mine life 25 years, expected average annual production is about 12kt Cu. Production data inserted in Chile.						2	12
Punitaqui	Glencore plc	Concentrates	Operating		2007, 2010	2008			Closed 2008 as Tamaya went into bankruptcy. Minerales del Sur SA (Glencore International AG) acquired the mining assets in Jan10. Re-started end 2010.	8	8	8	8	8	8	
Puquios	Minera Las Pascualas	SX-EW	Feasibility	OP					Possible cap 15 ktpy (formerly Las Pascualas). Natasa Mining Ltd decided in 2008 not to proceed with the project.						0	15
Quebrada Blanca	Teck Resources Ltd 76.5%, Inversiones Mineras SA 13.5%, Enami 10%	Concentrates	Operating	OP	1994				Transitioning from a high grade heap leach operation to a lower grade dump leach operation with gradual reduction towards end of cathode prod in early 2019. Potential for transition to concs for additional 20years. Production from the hypogene expected at approx 200ktpy Cu in concs. Earliest construction start is 2016, which would enable production at end of 2019. Due to shallower pit wall angles and associated mining constraints production lower in 2012-2014. Progressing in updating the permits for the existing facilities and life extension of the supergene operation. The social and environmental impact assessment to extend cathode production to 2020 was submitted on July 2014. The review, response, consultation and approval process is assumed to take 12 months.						0	
Quebrada Blanca	Teck Resources Ltd 76.5%, Inversiones Mineras SA 13.5%, Enami 10%	SX-EW	Operating	OP	1994				Transitioning from a high grade heap leach operation to a lower grade dump leach operation with gradual reduction towards end of cathode prod in early 2019. Potential for transition to concs for additional 20years. Production from the hypogene expected at approx 200ktpy Cu in concs. Earliest construction start is 2016, which would enable production at end of 2019. Due to shallower pit wall angles and associated mining constraints production lower in 2012-2014. Progressing in updating the permits for the existing facilities and life extension of the supergene operation. The social and environmental impact assessment to extend cathode production to 2020 was submitted on July 2014. The review, response, consultation and approval process is assumed to take 12 months.	70	60	50	50	40	40	

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Table1: WORLD COPPER MINES PRODUCTION CAPACITIES 2012 To 2017

Thousand metric tonnes copper

Mine	Operator/Owner(s)	Process	Status	Type (1)	Start Up	Closure/ LOM (2)	Concs. Cu %	Other Metals	Short remarks	2012	2013	2014	2015	2016	2017	Project Cap.
Radomiro Tomic	Codelco	SX-EW	Operating	OP	1998				From 2002 to 2010 included in Codelco Norte as in Nov2010 split of Codelco Norte Division into two independent divisions: Chuquicamata and Radomiro Tomic. Decline in oxide production from 2018 onwards and could start producing concentrates from the sulphide reserves. See Radomiro Tomic (Sulphides) project.	430	400	400	400	400	400	
Radomiro Tomic (Sulphides)	Codelco	Concentrates	Feasibility	OP	2019			Mo	Decline in oxide production from 2018 onwards and could start producing concentrates from the sulphide reserves of 2.600 Mt @ 0,47% Cu. Radomiro sulphide phase II project to start production in 2019 with a capacity of 343ktpy Cu in concs for a 29 years mine life. Will use sea water.						0	343
Salvador	Codelco	Concentrates	Operating	OP, UG	1926			Mo, Au, Ag	Originally due to close in 2011 was extended to 2021. Comprises the Inca UG mine & Campamento Antiguo and Damiana Norte OP mines. The San Antonio Oxido project expected to add 30ktpy cathode from mid-2015 during 24years but has been temporarily postponed and SX-EW production stopping in 2014.	50	50	50	50	50	50	
Salvador	Codelco	SX-EW	Operating	OP, UG	1926			Mo, Au, Ag	Originally due to close in 2011 was extended to 2021. Comprises the Inca UG mine & Campamento Antiguo and Damiana Norte OP mines. The San Antonio Oxido project expected to add 30ktpy cathode from mid-2015 during 24years but has been temporarily postponed and SX-EW production stopping in 2014.	25	16	10				
San Jose (Socavon)	Sociedad Punta del Cobre (Pucobre)	Concentrates	Operating	UG	1971		29		Punta del Cobre and Manto de Cobre mines supply the San José Concentrator to produce around 100ktpy concentrates @ 29%Cu. Mina Venado Sur (open pit) supply the SX-EW plant that started in 1994 with a current capacity of around 10-12 ktpy cathode	29	29	29	29	29	29	
San Jose (Socavon)	Sociedad Punta del Cobre (Pucobre)	SX-EW	Operating	UG	1971		29		Punta del Cobre and Manto de Cobre mines supply the San José Concentrator to produce around 100ktpy concentrates @ 29%Cu. Mina Venado Sur (open pit) supply the SX-EW plant that started in 1994 with a current capacity of around 10-12 ktpy cathode	12	12	12	12	12	12	
Santo Domingo	Capstone Mining Corp. 70%, Korea Resources Corporation 30%	Concentrates	Feasibility	OP	2018		30	Au, Fe	Development of two open pit mines. Far West Mining Ltd. was acquired by Capstone Mining Corp. June 2011. Avg LOM production of 58ktpy Cu averaging 110ktpy in the first 5 years. Conc grade 30%. Avg LOM magnetite concentrate production of 4.2 million dmt/y. 18 year mine life. Startup delayed from 2015 to 2018.							110
Sierra Gorda	KGHM 55%, Sumitomo 45%	Concentrates	Operating	OP	2014	2034		Au, Mo	LOM Annual Average Production at 227ktpy Cu. Mine life 20Y. To be one of the largest Mo producers in the world averaging about 50 Mlbs Mo/year during the first years. Will operate using seawater captured from the cooling systems at a thermal electricity generating plant, located on the coast of Mejillones, delivered through a 142.6 km pipeline. Undergoing evaluation of Sierra Gorda oxides. Started July 2014.			15	70	150	227	
Sierra Miranda	Sierra Miranda	SX-EW	closed		2007	2013				6	5					
Spence	BHP Billiton	SX-EW	Operating	OP	2007				Combination of chemical and bacterial leaching for the oxide and sulfide ore. Mine life 2026. Spence Hypogene project could extend the mine life by over 50 years. Would result in the conversion of large hypogene resources into reserves. Could add approximately 150-200 ktpy of copper production for the first ten years post commissioning. No start up date announced.	190	190	190	170	170	170	
Taltal Oxidos	Cia. Minera La Cenizas S.A.	SX-EW	Operating		2011					5	5	10	10	10	10	

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Tres Valles	Inversiones Porto San Giorgio S.A (Vecchiola S.A)	SX-EW	Operating	UG, OP	2010				Former Papomono. In Dec 2013 Vale sold it's 90% share to Inveriones Porto San Giorgio SA.	15	15	15	10	10	10	
Various small mines	ENAMI and Small Mine Owners	Concentrates	Operating	OP, UG					Delivering to ENAMI.	130	150	145	145	145	150	
Various small mines	ENAMI and Small Mine Owners	SX-EW	Operating	OP, UG					Delivering to ENAMI.	38	38	38	60	60	60	
Vizcachitas	Los Andes Copper	Concentrates	Feasibility	OP				Mo	Cu resource currently at 8.5 billion lbs indicated and 2.4 billion lbs inferred. PEA-stage project. 28 year mine life with average production of 394mmlbspa Cu and 11 mmlbspa Mo. To begin pre-feasibility study in 1Q2015.						0	178
West Wall	Glencore plc 50%, Anglo American 50%	Unknown Mine	Exploration	OP				Au, Mo	Joint Venture Xstrata Plc, Anglo American. Estimated Inferred Resource for the project's Lagunillas deposit amounts to 750 million tonnes at a grade of 0.54% copper and 0.01% molybdenum containing 4.0 million tonnes of copper using a 0.3% copper cut-off grade. The Mineral Resource also contains estimated average grades for gold of 0.05 grams per tonne (g/t).						0	
Zaldivar	Barrick Gold Corp.	Concentrates	Operating	OP	1995				A scoping study has been completed on the Zaldívar deep sulfides, and a prefeasibility study is underway with expected completion in 2014. This expansion opportunity has the potential to significantly increase annual mine production starting as early as 2019, increase copper reserves/resources and extend mine life.	1	1	1	1	1	1	
Zaldivar	Barrick Gold Corp.	SX-EW	Operating	OP	1995				A scoping study has been completed on the Zaldívar deep sulfides, and a prefeasibility study is underway with expected completion in 2014. This expansion opportunity has the potential to significantly increase annual mine production starting as early as 2019, increase copper reserves/resources and extend mine life.	140	130	130	120	120	120	
China			**Operating+Developing**							**1,404**	**1,437**	**1,506**	**1,677**	**1,716**	**1,716**	**95**
China			**Exploration+Feasibility**												**50**	**120**
China			**Total Status**							**1,404**	**1,437**	**1,506**	**1,677**	**1,716**	**1,766**	**215**
Anqing	Anhui Tongdu Co.	Concentrates	Operating	UG	1990			Au, Ag, Mo, Co		10	10	10	10	10	10	
Anqing Yueshan	Anqing Yueshan Copper Mine	Concentrates	Operating					Au, Ag, Mo	Bankrupt in 2009	1	1	1	1	1	1	
Ashele	Zijin Mining Co. 46%, Xinjiang Non Ferrous Metal Industry Corp., China Mining and Geological Dep.	Concentrates	Operating	UG	2004			Zn, Pb, Ag, Au	Considering leaching - electrowinning to save freight costs.	34	34	34	34	34	34	
Bainaimiao Copper Mine	Local Government	Concentrates	Operating		1976				Inner Mongolia underground mine production suspended since Sept 2010 but expand to 10 Kt/y Cu in 2014	2	5	10	10	10	10	
Baiyin Mine	Baiyin Non Ferrous Metals Co.	Concentrates	Operating	UG	1960			Au	Changed from open-pit to underground in 2008. In March 2012 started producing copper concentrates from the treatment of smelter slags with a capacity of 21ktpy Cu.	10	25	25	25	25	25	
Baiyunshan	Local Government	Concentrates	Operating	UG	1996					1	1	1	1	1	1	
Chengmenshan	Jiangxi Copper Corp.	Concentrates	Operating	OP	1991			Ag, Au	Expansion to 35ktpy in 2015/2016	15	15	20	25	35	35	
Dabaoshan	Dabaoshan Mining Co.	Concentrates	Operating	OP						2	2	2	2	2	2	
Dachang	Chinese Government	Concentrates	Operating	OP	1992					1	1	1	1	1	1	
Dahongshan	Yunnan Copper	Concentrates	Operating		1997			Au, Ag, Fe	25ktpy expansion in 2012	50	50	50	55	55	55	

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Dajing Silver/Copper Mine	Local Government	Concentrates	Operating	UG	1978			Sn, Ag		2	2	2	2	2	2	
Daye Iron Copper Mine	Daye Iron Ore Co.	Concentrates	Operating	UG	1890			Au, Ag, Fe	Primarily an iron ore mine.	20	20	20	20	20	20	
De erni	Zijing Gold & Copper	Concentrates	Operating	OP, UG	2006			Co	Qinghai Deerni mine	35	35	35	35	35	35	
Dexing	Jiangxi Copper Industry Co.	Concentrates	Operating	OP	1958			Mo, Au, Ag, Rh	Biggest OP mine in China. Expansion to 160ktpy in 2011 (Fujiawu deposit) that extended mine life.	160	160	160	160	160	160	
Diaoquan	Jiangxi Copper 46%	Concentrates	Operating	UG	2006			Au, Ag, Fe		5	5	5	5	5	5	
Dishui	Zhaojin Mining	Concentrates	Developing		2014							3	9	9	9	9
Dongchuan/ Tangdan	Yunnan Copper	Concentrates	Operating	UG	1960				Dongchuan was replaced by Tangdan end 2001.	20	20	20	20	20	20	
Dongguashan	Anhui Tongdu Copper Co. (Tongling)	Concentrates	Operating	UG	1966/2004			Au, Ag		36	36	36	36	36	36	
Duobaoshan Copper	Zijin Mining Co. 51%, Heiongjiang Heilong Mining Co. 37%	Concentrates	Operating	OP	1958				Stage I expansion completed in 2012 (to 30kt Cu). Stage 2 will increase capacity to 58kt Cu maybe by 2015	30	30	30	40	58	58	
Gejiu Qianjin	Local Government	Concentrates	Operating	UG	1958			Sn		3	3	3	3	3	3	
Hami Nickel Copper	Jinquan Nonferrous Metals	Concentrates	Operating		2000			Ni		5	5	5	5	5	5	
Hongtoushan Cu/Zn Mine	CNML	Concentrates	Operating	UG	1958			Zn		10	10	10	10	10	10	
Huangshan	Xinxin Mining Co.	Concentrates	Operating		2011			Ni	Copper-Nickel mine. Phase II: expansion to 10kt in 2013.	4	6	10	10	10	10	
Huanren Cu/Zn Mine	Huanren Mining Co.	Concentrates	Operating	UG	1951			Zn, Pb		3	3	3	3	3	3	
Huili		Concentrates	Operating		1958					1	1	1	1	1	1	
Huogeqi	Western Mining	Concentrates	Operating		1990			Zn, Pb	Expnsion to 45,000 in 2012	45	45	45	45	45	45	
Jia Ma Copper Mine	China National Gold Corp.	Concentrates	Operating		2010				Open pit + Underground, started production in April 2010. Add new concentrator in 2014. Located in Tibet.	12	12	20	50	50	50	
Jilin Huichan	Zijin Mining	Concentrates	Operating		2008					10	10	10	10	10	10	
Jingtiestan	Jinquan Steel	Concentrates	Operating		2012					1	3	3	3	3	3	
Jinquan Copper/Nickel	Jinquan Nonferrous Metals	Concentrates	Operating	UG, OP	1960			Ni	Located on edge of Gobi desert.	20	20	20	20	20	20	
Lala Copper	Yunnan Copper Group	Concentrates	Operating		1959					30	30	30	30	30	30	
Langyashan Copper	Local Government	Concentrates	Operating		1958				located in Anhui	5	5	5	5	5	5	
Liwu Copper	Local Government	Concentrates	Operating		1996				Located in Sichuan	8	8	8	8	8	8	
Longcai	Longcai Mining	Concentrates	Operating		1989					1	1	1	1	1	1	
Luanyuan Copper		Concentrates	Operating		1951					4	4	4	4	4	4	
Mangushan	Local Government	Concentrates	Operating		1995					2	2	2	2	2	2	
Nanking Guli	Local Government	Concentrates	Operating		1969					1	1	1	1	1	1	
Nanking Jiuhuashan	Local Government	Concentrates	Operating		1981					1	1	1	1	1	1	

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Nileke	Central China Goldfields plc (60%), Xinjiang Zhongbang Mineral Industry Company Ltd (40%)	Concentrates	Operating						Possible output increase to 3ktpy Cu.	1	1	1	1	1	1	
Pingshui	Pingshui Copper Mining Co.	Concentrates	Operating	UG	1967			Zn, Ag, Au, S, Barite		1	1	1	1	1	1	
Qilianshan	Local Government	Concentrates	Operating		1958					1	1	1	1	1	1	
Qulong	Tibet Julong Copper Co.	Concentrates	Feasibility		2017			Mo	The Qulong deposit is the largest porphyry Cu deposit in China, with at least ~10.6 Mt Cu, average 0.5% and ~0.5 Mt Mo, average 0.03%. Possible project development in two phases: Phase I at 120ktpy Cu in concs and Phase II expanding to 180ktpy.						50	120
Saishitang	Western Mining Industry Co. (69.7%), Xitieshan Mining Department	Concentrates	Operating	UG	2004			Au, Ag		13	13	13	13	13	13	
Sareke	Daye	Concentrates	Developing		2014				Concentrate to be smelted at Daye smelter in Hubei. Cap 9ktpy Cu.			5	9	9	9	9
Shaxi	Tongling Non Ferrous Metals	Concentrates	Developing		2015								5	16	16	16
Shuikoushan Mines	Shuikoushan Mine Bureau	Concentrates	Operating	UG	1896			Zn, Pb	Mostly a Pb/Zn mine.	7	7	7	7	7	7	
Shiquliu/Deheishan	Jilin Nickel Copper Industry Co.	Concentrates	Operating	UG	1964			Ni, Pb, Zn, Sb		3	3	3	3	3	3	
Shizishan	Tongling Copper Co.	Concentrates	Operating	UG	1966				Laoyalying, Shizishan ore bodies.	9	9	9	9	9	9	
Longshou	Jinchuan Group Ltd. (JNMC)	Concentrates	Operating	UG	2004			Ni		10	10	10	10	10	10	
Sijiawan		Concentrates	Operating		1978			Au		1	1	1	1	1	1	
Small Mines (Other)	various	Concentrates	Operating							130	130	130	130	130	130	
Small Mines Anhui		Concentrates	Operating	UG					Tongshan Copper Mine (Tongling) starts 2014, cap 5ktpy Cu	40	40	45	45	45	45	
Small Mines Gansu		Concentrates	Operating	UG						2	2	2	2	2	2	
Small Mines Guangxi		Concentrates	Operating	UG						2	2	2	2	2	2	
Small Mines Hebei		Concentrates	Operating	UG						1	1	1	1	1	1	
Small Mines Hubei		Concentrates	Operating							40	40	40	40	40	40	
Small Mines Innermongolia		Concentrates	Operating							20	20	20	20	20	20	
Small Mines Xinjiang		Concentrates	Operating						Tuwu-yandong mine (Central Asia Huajin Mining Industry Ltd) starts 2013, cap 10ktpy Cu. Tulaergen started 2010 cap 2ktpy, Baogutu starts 2013 cap13ktpy (all from Xijiang Non-Ferrous Metals). Tonghui started 2011 cap 10kt (Zhaojin Group)	28	32	45	52	52	52	
Songjiang	Local Government	Concentrates	Operating		1972			Zn		3	3	3	3	3	3	
SX-EW plants		SX-EW	Operating							100	100	100	100	100	100	
Tianbaoshan	Longin Harteng	Concentrates	Operating	UG				Zn, Pb		1	1	1	1	1	1	

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Tongkuangyu/ Hujiayu/ Bizhigou	Zhongtiaoshan Nonferrous Metals	Concentrates	Operating		1960				Expansion of 9ktpy in 2011	44	44	44	44	44	44	
Tonglushan	Tonglushan Copper Co. (Daye)	Concentrates	Operating	OP, UG	1971			Au, Fe, Ag	3ktpy expansion in 2013	12	15	15	15	15	15	
Tongshankuo	Daye	Concentrates	Operating	UG						8	8	8	8	8	8	
Various Mines	Local Government	Concentrates	Operating	UG				Pb, Zn, Ni, Sn, Sb		150	150	150	150	150	150	
Wunuketushan	China National Group Gold Corp.	Concentrates	Operating		2009			Mo, Au	Open pit mine. Started Sep 09. Phase II expansion in mid 2012 to 65ktpy Cu. Is the 2nd largest copper mine in China	65	65	65	65	65	65	
Xianlinbu Iron Mine	Xianlinbu Iron Mining Co.	Concentrates	Operating	OP	1938			Fe, W, S, Mo		4	4	4	4	4	4	
Xietongmen	Jinchuan Group Ltd. (JNMC)	Concentrates	Developing	OP	2014		25	Au, Ag	Feasibility completed in 2007. Avg cap 56kt Cu in concs @ 25% Cu. 14 years mine life. Finance agreement with Jinchuan Group. Xietongmen and Newtongmen deposits.			20	56	56	56	56
Xinhuashan	Tongling Non Ferrous Metals	Concentrates	Operating	UG	2000			Au, Ag, Mo		1	1	1	1	1	1	
Xinjiang (Altay)	Chinese Government	Concentrates	Operating	UG	1993			Ni, Ag, Au, Zn	Principally a Zn mine.	1	1	1	1	1	1	
Yangla/ Pulang (Diqing)	Yunnan Copper	Concentrates	Operating	OP, UG	2007			Au, Ag	Yangla started in 2007, cap at 20ktpy Cu in cons. Pulang to start by 2015 at 50ktpy Cu in concs	20	20	20	70	70	70	
Yangxin Lijiawan	Local Government	Concentrates	Operating	UG	1990					1	1	1	1	1	1	
Yanxi	Tongxing Mining (Daye 80%)	Concentrates	Developing		2014				Concentrate to be smelted at Daye smelter in Hubei. Cap 5ktpy Cu.			1	5	5	5	5
Yimen	Yunan Copper Co.	Concentrates	Operating	UG	1960					10	10	10	10	10	10	
Yongping	Jiangxi Copper Co.	Concentrates	Operating	OP, UG	1984			Au, Ag	started underground mining in 2011	17	17	17	17	17	17	
Yueshan	Jiangxi Copper Co.	Concentrates	Operating	UG	1970				new concentrator in 2012 and expansion in 2015	6	6	6	13	13	13	
Yulong	Quinghai Western Mining 41%, Fujian Zijin Mining 39%	SX-EW	Operating	OP	2009			Au, Ag		3	3	3	3	3	3	
Yunan Tin Industry	Yunan Tin Industry	Concentrates	Operating	UG	1913			Sn, Pb, Ag		6	6	6	6	6	6	
Yushan (Wushan) and Dongxiang	Jiangxi Copper Corp.	Concentrates	Operating	OP						20	24	24	24	24	24	
Zhangye	Local Government	Concentrates	Operating	UG	1987					2	2	2	2	2	2	
Zhaojun	Liangshan Zhaojue Copper Works	Concentrates	Operating	UG	1958					1	1	1	1	1	1	
Zhouping	Local Government	Concentrates	Operating		1990					2	2	2	2	2	2	
Zijinshan	Zijing Gold & Copper	SX-EW	Operating		2005			Au		20	20	20	20	20	20	
Colombia			**Operating+Developing**							**3**	**3**	**3**	**5**	**5**	**5**	
El Roble	Minera El Roble 10%, Atico Mining Corporation 90%	Concentrates	Operating	UG	1990		23	Au	Inferred resources 1.58 Mt tonnes of 4.45% Cu and 3.17 g/t Au. New taillings dam in 2014 will allow capacity expansion. Concs sold to Trafigura.	3	3	3	5	5	5	

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Congo			**Operating+Developing**							**670**	**903**	**1,096**	**1,198**	**1,299**	**1,309**	**136**
Congo			**Exploration+Feasibility**										**0**		**0**	**688**
Congo			**Closed**													
Congo			**Total Status**							**670**	**903**	**1,096**	**1,198**	**1,299**	**1,309**	**824**
Deziwa & Ecaille C	Gecamines	SX-EW	Feasibility					Co	Gecamines ended joint venture with Copperbelt Minerals end 2012 and gained 100% control in the project. Gecamines plans to build a 200ktpy operation in two phases with both mines that combined have estimated reserves of 5MT copper and 400Kt Co. 1st phase is for a 80ktpy copper cathode plant and 8ktpy Co, for a mine life of 20Y						0	200
Dikulushi	Mawson West Limited (90%), Dikulushi-Kapulo Community Foundation NPO (10%)	Concentrates	Operating	OP, UG	2002	2014		Ag	Open pit mining ceased Nov06 - Mine from stock pile continued. Put on C&M in Jan 09. Anvil Mining sold its 90% in Feb10. Re-started Jun 10 processing low-grade stockpile. 2012 restarted open pit mining that was completed in July 2013 and stockpiled ore was processed until the end of 2013. Nov 2013 started underground mining that extends Dikulushi mine life into 2014 -potential to extend further. Projected production rate of 800tp month Cu. Opportunity to evaluate development of satellite deposits to supplement underground high grade feed.	6	22	10				
Etoile	Chemaf (100% Shalina Resources) 99.04%, Shiraz Virji and Abbas Virji 0.96%	SX-EW	Operating	OP	2002			Co	Etoile was mined by Gécamines until the 1960s and artisanal miners until 2000, when the Ruashi-Etoile concession was divided and offered to private investors. Chemaf was granted the rights to Etoile. Started small-scale mining in 2002. In 2007 bought the Mount Gordon Cu SX/EW and re-assembled it. Capacity of Usoke SX-EW plant is 31ktpy cathode. Mining at Mufunta deposit to start in 2015 and capacity could be expanded to 50ktpy. Currently processing oxide ore but when sulphide ore will be reached, using pyro-metallurgical techniques, the sulphide concentrate (from the flotation plant Q1 2015) will be converted to oxides (in the roaster Q2 2015) and treated at the Usoke plant.	24	31	31	35	40	50	
Frontier	Eurasian Natural Resources Corporation PLC	Concentrates	Operating	OP	2007			Co	Mineral resource 273.8Mt @1.18% Cu. Mine life 19 years. Aug10 suspended operations following the withdrawal of exploitation permit by CAMI, RDC mining registry, and a letter from SODIMICO, the state-owned mining company which has purportedly been granted Frontier's titles. On October 2010 First Quantum commenced international arbitration. In Jan 2012 First Quantum and ENRC announced agreement on ENRC aquiring the licences. Mine restarted 1Q2013. Capacity of 80-90ktpy Cu in concs.	0	40	85	90	80	80	
Huachin	Sino-Metals Leach Zambia Ltd 30%	SX-EW	Operating		2012				Hydrometallurgy plant started Feb 2012. Cap 10ktpy.	6	10	10	10	10	10	
Kakanda Project	Greenrock Resouirces. (51%), Gecamines (49%)	SX-EW	Feasibility	OP				Co	Adjacent to Tenke. The Kakanda tailings reprocessing project has NI 43-101 measured and indicated resources of 18.5 million tonnes @ 1.25% Cu and 0.15% Cot. Can produce around 30ktpy Cu.						0	30
Kalukundi	Swanmines (Africo 75% (63.7% ENRC), Gecamines 25%)	Unknown Mine	Exploration					Co	Ore reserve of oxide has been defined within 4 fragments of 27.2Mt @ 2.54% Cu and 0.59% Co (689kt Cu). Below the oxide material is a zone with mixed oxide-sulphides. Subject to feasibility study. ENRC participation through Camrose Resources						0	

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Kalumines	Gecamines	Concentrates	Feasibility						Lupoto, Kasonta, Niamumenda and Karu East. Drilling and metallurgical test work is in progress to evaluate the possible development of these copper/cobalt resources. Possible 40ktpy Cu production. The Vale/ARM Joint Venture sold project to Gecamines in 1Q2013						0	40
Kamoa	Ivanhoe Mines Ltd 95%, DRC government 5%	Concentrates	Feasibility	UG	2018	2047	39		Sulphide mineralisation. Measured resources of 739MTgrading 2.67% copper, containing 19.7Mt Cu. Initial mining rate and concentrate feed capacity of 3Mtpy would be followed in Year 5 (2022) by an additional expansion of 8Mtpy in concentrator capacity and an on-site smelter of 300Ktpy Cu blister. 30-year mine life. In 2022, transition year between concentrate and blister production. Average prod in concs phase is 104ktpy Cu and blister phase is 313ktpy Cu. In Jul 2014 started construction on the box cut for the initial portal to planned decline ramps.						0	313
Kamoto	Katanga Mining Ltd (74.4% Glencore plc) 75%, Gecamines 25%	SX-EW	Operating	UG, OP	2007	2040		Co	Includes Kamoto UG mine, T17 OP mine in C&M since Q3 2011 that restarted in Q3 2013, the T17 UG mine project (maybe 2015), the KOV OP mine, Mashamba East OP (by 2018), Kamoto East UG mine (by 2020), Kamoto ore is leached at Luilu refinery plant. Started Jul07. Expansion in 5 phases to 310kt by end 2014 with phase 5 currently under construction. The feasibility study for T17 UG mining was completed in Q3 2013 and decision is awaited.	70	80	140	250	310	310	
Kamoto (concentrate)	Katanga Mining Ltd (74.4% Glencore plc) 75%, Gecamines 25%	Concentrates	Operating		2006				Kamoto has excess capacity which is being utilized to produce oxide concentrate as a finished product for sale.	35	50	50				
Kangeshi	Black Fire Minerals Ltd 54%	Unknown Mine	Exploration	OP				Ag	Initial Exploration Target for open pitable mineralisation at the Kangeshi Prospect is 25-35Mt @ 0.8 – 1.2% Cu and 15-20g/t Ag. Company continues to work with its JV partners to resolve the potential forestry issues affecting the Kangeshi Licence with the aim of recommencing exploration activities as soon as possible. The potential of a number of other prospects within the project area is yet to be assessed along with the deeper underground potential.						0	
Kasala	El Niño Ventures, 70%	Unknown Mine	Exploration						Greenfield project. 26 Mt tonnes grading 3.79% Cu in Measured and Indicated oxide resources. All of the exploration programs under Force Majeure pending outcome of arbitration in British Columbia and litigation in the DRC. Future Development Plan: Option/JV or Potential Spin out.						0	
Kansuki	Glencore plc (54.5% indirect interest), High Grade Minerals S.A. 14.5%, Rowny Assets Ltd (Fleurette Properties Ltd) 31%	SX-EW	Feasibility					Co	Mutanda & Kansuki merged in Jul13. Kansuki 50.7Mt @ 1.29% Cu and 0.31% Co. Close proximity to Mutanda. Production capacity 100ktpy Cu. Production included in Mutanda.							
Kapulo	Mawson West Limited (90%), Dikulushi-Kapulo Community Foundation NPO (10%)	Concentrates	Developing	OP	2014	2021		Ag	Jul 11 feasibility study indicates Reserves of 3.6 Mt at 3.6% Cu Shaba open cut only. Avg Prod at 19.5 kt Cu/y over a 6 year mine life. Commissioning scheduled for 4Q2014			2	15	20	20	20
Kileba	Tiger Resources Ltd	SX-EW	Exploration						Included in Kipoi							
Kimpe	KGHM	Unknown Mine	Feasibility	OP					Potential 100,000 tpy operation. Project put on hold.						0	100

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Thousand metric tonnes copper

Mine	Operator/Owner(s)	Process	Status	Type (1)	Start Up	Closure/ LOM (2)	Concs. Cu %	Other Metals	Short remarks	2012	2013	2014	2015	2016	2017	Project Cap.
Kinsenda	Metorex (Jinchuan Group) 75%, SODIMICO 20%, Forrest Group 5%	Concentrates	Developing		2015				Brownfield project. Miniere Musoshi Kisenda. Bankable Feasibility Study completed 2011. To produce both sulphide and oxide copper concentrates with total capacity of 26ktpy Cu in concs. Expected to start in 2015				5	26	26	26
Kinsevere Phase 1	Minmetals	Concentrates	Closed		2007	2011		Co	Mining operations and HMS plant suspended in 4Q08.In Mar09 restarted HMS plant. Feed from the Run of Mine stockpile. Production ended 2011 when SX-EW plant started. Minmetals aquired Anvil Mining in 2012							
Kinsevere Phase 2	Minmetals	SX-EW	Operating		2011				60ktpy SX-EW plant to treat reject products from current operation put on hold Nov 08. Finance Agreement with Trafigra in Aug09 used to recommence construction. Startup 2Q2011. Operational 14Y. Minmetals aquired Anvil Mining in 2012	37	63	63	63	63	63	
Kipoi	Tiger Resourses Ltd	Concentrates	Operating	OP	2011	2015	25	Co	Hosts five copper deposits: Kipoi Central, Kipoi North, Kileba, Judeira and Kaminafitwe. Stage 1 with HMS plant started April 2011 ending early 2015. A Stage 2, SXEW plant started May 2014 capable of producing 538 Mt cathode over 11 years, processing ore reserves from the Kipoi Central, Kileba and Kipoi North deposits and reject floats, slimes and medium grade ore stockpiles from the Stage 1 HMS operation. Ore from Judeira and other deposits within the Kipoi Project area, as well as the Lupoto Project, will also be processed during the Stage 2 operations.	37	42	40	5			
Kipoi SX-EW	Tiger Resources Ltd	SX-EW	Operating		2014	2025			Hosts five copper deposits: Kipoi Central, Kipoi North, Kileba, Judeira and Kaminafitwe. Stage 1 with HMS plant started April 2011 ending early 2015. A Stage 2, SXEW plant started May 2014 capable of producing 538 Mt cathode over 11 years, processing ore reserves from the Kipoi Central, Kileba and Kipoi North deposits and reject floats, slimes and medium grade ore stockpiles from the Stage 1 HMS operation. Ore from Judeira and other deposits within the Kipoi Project area, as well as the Lupoto Project, will also be processed during the Stage 2 operations.			10	25	50	50	
Kipushi Zn/Cu mine	Ivanhoe Mines Ltd 68%, Gecamines 32%	Concentrates	Feasibility	UG	1924	1993		Zn	Mine operated from 1924 to 1993 producing zinc concentrates (with 3-6% Cu), then put on C&M since then. Feasibility study underway for reopening mine. Ivanhoe also has been upgrading and rebuilding Kipushi's surface infrastructure to support a return to production. Dewatering program has achieved its key initial objective of restoring access to the main underground working in Dec 2013. Underground drilling program to be undertaken in 2014.						0	
Kolwezi Mill	La Générale des Carrières et des Mines - Gecamines	Concentrates	Operating					Co	Kolwezi concentrator.	25	25	25	25	25	25	
Kolwezi Tailings	Eurasian Natural Resources Corporation PLC 70%, DRC Government, Gécamines and Sociéte Immobiliére du Congo 30%.	SX-EW	Developing		2014			Co	RTR - Roan Tailings and Reclamation Project (formerly known as Kolwesi Tailings) with 1.7Mt Cu, 363Kt Co. Expected capacity 70 ktpy Cu. Mine life 22 yrs. Target prod Q210 but construction stopped Sep09 as licence was revoked by gov. Aug10 ENRC acquire 50.5% in Camrose that includes stake in the project. First Quantum disputes decision. On February 2010, commenced international arbitration. In Jan 2012 companies announced agreement, ENRC acquired project. Production to start H2 2014.			30	70	70	70	70

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KOV	Katanga Mining Ltd (74.4% Glencore plc) 75%, Gecamines 25%	SX-EW	Operating		2010			Co	Included in Kamoto as ore is treated in the Kamoto concentrator do produce cathode.						0	
Kulu Mutoshi	Minmetals	Concentrates	Operating	OP	2005			Co	Plans for a 15ktpy SX-EW plant with a further 15kt added in a 2nd stage. Project on hold. Mining suspended 3Q08 du to lower metallurgical recovery and grades. Mine on C&M. In order to help address a significant social issue in the area the Company agreed to allow artisanal mining activity until such time as evaluation work at Mutoshi resumes.	5 on C&M	5	5				
Lonshi	First Quantum Minerals Ltd	SX-EW	Closed	OP	2001	2010			Ore leached at Bwana Mkubwa, Zambia. Depleted in 2008. Oxide ore stockpile continued to be processed at Bwana until the 3Q10 and closed. Bwana SX-EW plant to be used at Kansanshi expansion.							
Lubembe	Metorex (Jinchuan Group) 75%, SODIMICO 20%, Forrest Group 5%	Unknown Mine	Feasibility					Co	Drilling programme completed. Mineral resource estimate 93.4 million tons at 1,9 percent copper.Pre-feasibility study work is progressing.						0	
Lubumbashi	Gecamines	Concentrates	Operating	OP	2000			Co, Zn	Slag deposit of 14 million tonnes. Estimated lifetime of 20 years.	3	3	3	3	3	3	
Luiswishi	Gecamines	Concentrates	Operating	UG				Co	Gecamines acquired the 60% of Entreprise Générale Malta Forrest in 2013.	12	12	12	12	12	12	
Luita	CAMEC (ENRC)	SX-EW	Operating		2007			Co	3 facilities: Luita SX/EW plant, Kakanda concentrator, Kambove acid plant. Put on C&M on Nov08. Restarted Apr09. Acquisition of CAMEC by ENRC in Nov09. New solvent extraction plant in 2013	100	100	100	100	100	100	
Mabende	Sino-Metals Leach Zambia Ltd 60%, Congo Huachin 40%	SX-EW	Developing		2014				Treats ore from the Mabende mine. Capacity 20ktpy cathode. Starts 2014.			10	20	20	20	20
Mashitu	Comide - La Congolaise des Mines et Development Sprl (100% Eurasian Natural Resources Corporation PLC)	Concentrates	Operating	OP	2011			Co	Large resource base: 701 thousand tonnes Cu and 81 thousand tonnes of Co. Significant potential exists to increase the mineral resource base. 4 Licences: Kii, Mutshatsha, Pungulume, Mashitu. Open pit mining started in Q4 2011 at Mashitu. Production of approx 118 kt of concentrate grading 8% Cu in 2012, increasing to 368 kt in 2013. ENRC participation through Camrose Resources.	10	30	30	30	30	30	
Musonoi/Sokoroshi	Metorex (Jinchuan Group)	Unknown Mine	Exploration						A study was completed by Metorex in February 2010, which concluded that the Dilala East project shows reasonable prospects of being developed into a profitable underground mining operation. This was based on the declared SAMREC compliant oxide/sulphide resource of 19,1 Mt at 2,9% Cu and 0,9% Co. Exploration drilling activities are ongoing.						0	
Musoshi (project)	Metorex (Jinchuan Group) 75%, SODIMICO 20%, Forrest Group 5%	Unknown Mine	Exploration						Miniere Musoshi Kisenda. Jinchuan Group acquired Metorex eraly 2012.						0	
Mutanda	Glencore plc (54.5% indirect interest), High Grade Minerals S.A. 14.5%, Rowny Assets Ltd (Fleurette Properties Ltd) 31%	SX-EW	Operating	OP	2010	2024		Co	Mutanda & Kansuki merged in Jul13. Mutanda mine life +20 years. Ore body in the form of sulphides lies below these reserves and are expected to extend life. 20Kt SXEW plant in 4Q10, 40Kt SXEW plant mid 2011 and expansion to 110kt in 1Q12 and with Kansuki expansion to 200ktpy Cu Dec 2013. Central OP (on hold), East OP and Central NW OP being mined. Three pits expected to consolidate into one large open pit by 2018.	90	150	200	200	200	200	

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Pumpi & Kamasani	Managem	Concentrates	Feasibility					Co	Could produce 5ktpy Cu and 1.5ktpy Co. Copper resources at 271kt and cobalt at 70kt.						0	5
Ruashi I	Metorex (Jinchuan Group) 80%, Gecamines 20%	SX-EW	Operating		2006			Co	Concentrator treats oxide stockpiles from Ruashi. Started Jul06. Processed in Zambia into cathode (Sable)	5						
Ruashi II	Metorex (Jinchuan Group) 80%, Gecamines 20%	SX-EW	Operating		2008			Co	Mining of Ruashi open pit, expansion of concentrator and new SX-EW plant. Mine life 20+ years. Startup was delayed until Nov 08.	45	45	45	45	45	45	
Tenke Fungurume	Freeport-McMoRan Copper & Gold Inc. 56%, Lundin Mining. 24%, Gecamines 20%	SX-EW	Operating	OP	2009	2050+		Co, Ag	Mine life 40 years. Started March 2009 with capacity of 115ktpy Cu and over 8ktpy Co in hydroxide. With subsequent debottlenecking and plant upgrades capacity increase to 132ktpy and 11kt Co. Phase 2 expansion to around 195ktpy Cu and 15kt Co completed in 2013. Sulphide development being evaluated. Further expansion planned with the aim of achieving production in excess of 400ktpy Cu. This is one of several stages of development with objective of ultimately producing around 500ktpy Cu mining multiple deposits concession-wide. A second sulphuric acid plant is expected to be completed in 2016.	160	195	195	195	195	195	
Cyprus			**Operating+Developing**							**6**	**6**	**6**	**6**	**6**	**6**	
Tamasos (Skouriotissa)	Hellenic Copper Mines	SX-EW	Operating	UG, OP	1982			Au	Closed Dec-04 and reopened Jun-06.	6	6	6	6	6	6	
Dominican Republic			**Operating+Developing**							**18**	**18**	**33**	**43**	**43**	**40**	
Dominican Republic			**Exploration+Feasibility**													
Dominican Republic			**Total Status**							**18**	**18**	**33**	**43**	**43**	**40**	
Pueblo Viejo	Barrick Gold Corp. 60%, Goldcorp 40%	Concentrates	Operating		2012	2038		Au, Ag, Zu	254 million lb Cu. Mine life 24Y. Started August 2012. Ramp-up to full capacity is expected to occur in 2014	5	5	20	30	30	30	
Cerro de Maimon	Perilya Ltd (major shareholder Zhongjin Lingnan)	Concentrates	Operating	OP	2008		23	Au, Ag	Started Aug08. Mine life 9-10 years.Conc grade around 23%Cu. Cap.13ktpy Cu. GlobeStar Mining acquired by Perilya Ltd in Dec 2010. Underground mining study to evaluate the feasibility of mining the deeper and southern extensions of the Cerro de Maimón completed in 2013.	13	13	13	13	13	10	
GoldQuest Projects	GoldQuest Mining Corp.		Exploration					Au	Several Au, Ag, Cu projects under exploration: Las Animas, Las tres Palmas, Romero, etc. With current focus on Romero and Las Palmas							
Ecuador			**Operating+Developing**												**20**	**60**
Ecuador			**Exploration+Feasibility**												**0**	**430**
Ecuador			**Total Status**												**20**	**490**
Chaucha	Empresa Nacional Minera (Enami EP)	Unknown Mine	Exploration					Mo, Ag	2.2 billion lbs Cu. With new mining law, Copper Mesa Mining Corp. lost the licences to the public company Empresa Nacional Minera (Enami EP) in 2009. In 2011, Enami PT (government) signed an agreement with Codelco with the aim of developing the mining industry in the country.						0	100

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Thousand metric tonnes copper

Mine	Operator/Owner(s)	Process	Status	Type (1)	Start Up	Closure/ LOM (2)	Concs. Cu %	Other Metals	Short remarks	2012	2013	2014	2015	2016	2017	Project Cap.
Junin	Empresa Nacional Minera (Enami EP)	Unknown Mine	Exploration					Mo, Ag, Au	Ecological groups opposing mine activities in the region. With new mining law, Copper Mesa Mining Corp. lost the licences to the public company Empresa Nacional Minera (Enami EP) in 2009. Codelco is in talks with Enami for the joint development of the Junin copper deposit. 318 Mt @ 0.71 %Cu, 0.02 %Mo. Changed name from JUNIN to LLURIMAGUA						0	150
Mirador	Corriente Resources Inc (Tongling Nonferrous Metals Group Holdings Co., Ltd. and China Railway Construction Corp.Ltd)	Concentrates	Developing	OP	2017			Au, Ag	60 ktpy Cu in concs @ 30% Cu. Project delayed by government suspension that was lift in Mar09. Tongling Nonferrous Metals Group Holdings Co., Ltd. and China Railway Construction Corporation Limited acquired Corriente Resources in Aug. 2010						20	60
Panantza	Corriente Resources Inc (Tongling Nonferrous Metals Group Holdings Co., Ltd. and China Railway Construction Corp.Ltd)	Concentrates	Feasibility				29	Ag, Mo	Includes San Carlos. Resources of 1.05 billion tonnes @ 0.63% Cu. Avg annual prod at 180kt Cu in concs @29% Cu. Tongling Nonferrous Metals Group Holdings Co. Ltd. And China Railway Construction Corp. Ltd acquired Corriente Resources in Aug. 2010						0	180
Telimbela	Empresa Nacional Minera (Enami EP)	Unknown Mine	Exploration					Mo	With the new mining law, Copper Mesa Mining Corp. lost the licences to the public company Empresa Nacional Minera (Enami EP) in 2009. Grades between 0.26% to 0.76% CU ; and up to 1.41 % Cu. Up to 0.02 % Mo.						0	
Eritrea			**Operating+Developing**								**20**	**90**	**65**	**50**	**15**	
Eritrea			**Exploration+Feasibility**										**0**	**18**	**41**	**29**
Eritrea			**Total Status**								**20**	**90**	**65**	**68**	**56**	**29**
Asmara	Sunridge Gold Corp. 70%, ENAMCO 30%	Concentrates	Feasibility	OP	2015		25	Au, Ag, Zn	Four deposits: Emba Derho, Debarwa, Adi Nefas, Gupo with total resources of 570Kt Cu. Copper production starts 2nd year (2016), full Prod in 3rd year. First 8 years average annual production around 29kt Cu. Copper concentrate avg 25 % Cu. Mine life 15Y.				0	18	41	29
Bisha	Nevsun Resources Ltd 60%, Eritrean National Mining Corporation (ENAMCO) 40%	Concentrates	Operating	OP	2013	2023	32	Au, Ag, Zn	High-grade Au, Cu and zn deposit. Ten year mine life. Production is anticipated to yield 734M lb copper over mine life. Au production started end 2010, copper started mid July 2013 and zinc to start in 2015. Average annual cap at 70kt Cu in concs		20	90	65	50	15	
Hambok	Nevsun Resources Ltd	Unknown Mine	Exploration					Au, Ag, Zn	Hambok is a copper-zinc massive sulphide and represents potential additional feed for the Bisha mill. The eight hole diamond drilling program was completed in July 2013. (1.68% Cu and 2.61% Zn) Mineral resource estimate to be announced in early 2014.						0	
Fiji			**Exploration+Feasibility**												**0**	**66**
Namosi	Newcrest Mining Ltd 70%, Nittetsu Mining Co Ltd (2%), Mitsubishi Materials Corp (28%)	Concentrates	Feasibility	OP				Au	Currently at the pre-feasibility stage. Presence of a near surface copper-gold porphyry system. An Environmental Impact Assessment (EIA) is underway to assess potential social and environmental impacts						0	66

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Finland			**Operating+Developing**							**28**	**40**	**40**	**39**	**37**	**37**	
Finland			**Exploration+Feasibility**											**0**		
Finland			**Total Status**							**28**	**40**	**40**	**39**	**37**	**37**	
Kevitsa	First Quantum Minerals Ltd	Concentrates	Operating	OP	2012	2042		Ni, Co, Pt, Pl, Au	First Quantum acquired Scandinavian Minerals in June 2008. Started 2H 2012. Cap 17ktpy Cu. Approval to increase throughput rate from 5.5 to 10 Mtpa. Could increase production to approx 15kt Ni and 28-30 kt Cu. Estimated mine life of 29 years (basis Dec 2013).	9	17	17	17	17	17	
Kylylahti	Altona Mining Ltd	Concentrates	Operating	UG	2012		28	Au, Ni, Co, Zn	Cap 8 kt Cu in 28% Cu concs. Mine life 8Y. Project put on C&M end 2008 due to global crisis. In Nov09 acquired Luikonlahti processing plant. Potential for 50ktpy Cu. Universal Resourses merged with Vulcan Resources 2010 now Altona Mining. Started prod Jan2012.	4	8	8	8	8	8	
Pyhasalmi	First Quantum Minerals Ltd	Concentrates	Operating	UG	1962	2019		Zn	Estimated mine life of 6 years (basis 2013)	15	15	15	14	12	12	
Georgia			**Operating+Developing**							**12**	**12**	**12**	**12**	**12**	**12**	
Madneuli complex	GeoProMining	Concentrates	Operating	UG				Ba, Au	Privatized Nov 2005. Production process optimization 2009/2012	12	12	12	12	12	12	
Greece			**Exploration+Feasibility**													
Skouries	Eldorado Gold Corp.	Concentrates	Developing	OP, UG	2016		26	Au	Open pit followed by underground. Capacity 30ktpy Cu from Open Pit, 22ktpy Cu from underground. Expected startup mid 2013 but delayed. Mine life 27Y. Eldorado Gold Corp. aquired European Goldfields in Dec2011. Mineral reserves of 3.6Moz Au and 736Kt Cu. The project benefits from a simple metallurgical process route and will produce clean Cu-Au concentrate via flotation as well as doré from the gravity circuit.					2	30	30
Haiti			**Exploration+Feasibility**												**0**	
La Mine & Treuil Projects	Eurasian Minerals Inc.	Unknown Mine	Exploration					Au, Ag	Joint Venture with Newmont Venture Ltd for exploration in Haiti						0	
India			**Operating+Developing**							**42**	**42**	**42**	**42**	**59**	**100**	
Khetri/ Kolihan/ Chandmari	Hindustan Copper Ltd.	Concentrates	Operating	UG, OP	1967				Expansion at both undergroung mines by 2016	13	13	13	13	13	13	
Malanjkhand	Hindustan Copper Ltd.	Concentrates	Operating	OP	1982				HCL to quadruple its mine capacity to 12.4 Mta by 2017. Eight mine projects rolled out concurrently (new UG mine at Malanjkand, expansion at Khetri, Kolihan and Surda, reopening of Rakha and Kendadih, new mine at Banwas and Chapri-Sideshwar). Total HCL mine prod to reach 115ktpy Cu by 2017.	23	23	23	23	40	80	
Misc. group of mines	Chitradurga/Gujaret etc.	Concentrates	Operating	UG	1970					1	1	1	1	1	1	
Surda	Hindustan Copper Ltd.	Concentrates	Operating	UG	1930			Ag, Au, Se, Ni, Te	Closed 2003, reopened Sept07. Alliance with Indian Resources. Part of the Indian Copper Complex (ICC). Expansion of underground mine by 2017.	5	5	5	5	5	6	

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Indonesia			**Operating+Developing**							**1,040**	**1,040**	**1,042**	**1,070**	**1,103**	**1,108**	
Batu Hijau	Pt Newmont Nusa Tenggara (PT Pukuafu 20%, Newmont 41.5%, Sumitomo Corp., Sumitomo Metal Mining & Mitsubishi Materials 31.5%, PT Multi Daerah Bersaing 7%)	Concentrates	Operating	OP	1999			Au, Ag	Phase 6 stripping started in May 2010 to extend mining to 2017 and processing to 2028. Exploration permits for Elang received in 2010. Potential 16lbs Cu. Located 60km from Batu Hijau. During phase 6 stripping processing lower grade stockpiled ore until Phase 6 ore becomes the primary mill feed. Expected to reach Phase 6 ore in 1H2013 but delayed to end 2014. 2011/2012 production of copper significantly lower than capacity. Signed in Dec 2013 a Conditional Sales Purchase Agreement of Concentrate with PT Indosmelt and PT Nusantara Smelting to supply copper concentrate to be smelted at the two new smelters	250	250	250	280	280	280	
Big Gossan	P.T. Freeport Indonesia Co.	Concentrates	Operating	UG	2010	2035		Au	High grade deposit. Capacity of 61ktpy Cu in concentrates. Began producing in 4Q 2010 and full rates of 7,000 metric tons of ore per day end 2012. Ends around 2035. Data included in Grasberg						0	
Grasberg	P.T. Freeport Indonesia Co. (PT-FI), Rio Tinto	Concentrates	Operating	OP, UG	1972/1990			Au, Ag	Big Gossan UG mine started 4Q2010 to end around 2035. Several projects in progress related to the development of large-scale, long-lived, high-grade underground ore bodies. In aggregate, these UG ore bodies are expected to ramp up over several years to produce approx 240Mtpd of ore following the transition from the Grasberg open pit by 2017. The Deep Ore Zone UG to end around 2020. Development of the Grasberg Block Cave and Deep Mill Level Zone (DMLZ) mines is advancing to enable DMLZ to start production in 2015 and full prod in 2021 (235kt Cu) and the Grasberg Block Cave mine in 2017 and full prod in 2022 (560kt Cu) . Kucing Liar ore to start by 2025.	790	790	790	780	800	800	
Wetar	Finders Resources Ltd 85%	SX-EW	Operating	OP	2008, 2014			Zn	Demonstration plant started Dec 08 and temporarily shut down Feb 2011 pending final mining permits. Bought SX-EW pant from Whim Creek. The previous two stage expansion is superseded by a simpler construction plan involving the expansion of the existing Whim Creek SX-EW plant to 25ktpy. The demonstration plant was upgraded from 1.8ktpy to 3ktpy and started April 2014. SW-EW plant to start 2H2015. 8.9 Mt at 2.4% Cu for approx. 210kt contained copper			2	10	23	28	
Iran			**Operating+Developing**							**299**	**299**	**369**	**392**	**462**	**527**	**111**
Iran			**Exploration+Feasibility**												**0**	**27**
Iran			**Total Status**							**299**	**299**	**369**	**392**	**462**	**527**	**138**
Chah Firozeh and Ijue Copper Plant	National Iranian Copper Industry Co.	Concentrates	Feasibility	OP			26		Greenfield project. Open pit mine. Start up was planned for 2015 but postponed. Cap 50ktpy concentrates @26% Cu (13ktpy Cu).						0	13
Chehel Korreh	National Iranian Copper Industry Co.	Concentrates	Developing	UG	2015		20	Zn	Greenfield project. Underground mine. Cap 17ktpy concs @ 20% Cu (3ktpy Cu)				3	3	3	4
Dar Alou Copper Complex	National Iranian Copper Industry Co.	Concentrates	Developing	OP	2016		26		Greenfield project. Open pit mine. Start up in 2016. Cap 100ktpy concentrates @26% Cu (26ktpy Cu).					13	26	26
Darehzar & Nouchoon Copper Concentrators	National Iranian Copper Industry Co.	Concentrates	Developing	OP	2016		26	Mo	Greenfield project. Opne pit mine. Start up in 2016. Cap 180ktpy concentrates @26% Cu (47ktpy Cu). Also produces 2ktpy Mo concentrate					20	47	47

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Haft Cheshme Copper Complex	National Iranian Copper Industry Co.	Concentrates	Feasibility	OP					Planned for 2015 but postponned. Ore planned to be sent to Sungun Phase 3 plant						0	
Masjid Daghi Copper Complex	National Iranian Copper Industry Co.	Concentrates	Feasibility	OP			36		Greenfield project. Open pit mine. Start up planned for 2015 but postponned. Cap 7ktpy concentrates @36% Cu (2.5ktpy Cu).						0	3
Miduk (Meydouk)	National Iranian Copper Industry Co.	Concentrates	operating	OP	2004		30	Mo	Cap 150ktpy conc @ 30% Cu (45ktpy Cu). SX-EW plant started May 2012 (cap 5ktpy). Phase 2 expansion cap 280ktpy conc @ 26% Cu (73ktpy Cu) planned for 2015 was postponed. To produce also 0.87ktpy Mo concs @54%	45	45	45	45	45	45	
Miduk (Meydouk)	National Iranian Copper Industry Co.	SX-EW	operating	OP	2004			Mo	Cap 150ktpy conc @ 30% Cu (45ktpy Cu). SX-EW plant started May 2012 (cap 5ktpy). Phase 2 expansion cap 280ktpy conc @ 26% Cu (73ktpy Cu) planned for 2015 was postponed. To produce also 0.87ktpy Mo concs @54%	5	5	5	5	5	5	
Nicico other SX-EW Mines	National Iranian Copper Industry Co.	SX-EW	Developing		2016				Includes Sungun Bioleaching plant, cap. 5ktpy Cu that starts in 2016 and the planned Taft Copper Complex 3ktpy Cu SX-EW plant. Total agregated capacity 8ktpy Cu					3	5	8
Kahang Copper Complex	National Iranian Copper Industry Co.	Concentrates	Feasibility	OP			28	Mo	Greenfield project. Open pit mine. Start up planned for 2015 but postponned. Cap 38ktpy concentrates @28% Cu (11ktpy Cu).						0	11
Sarcheshmeh	National Iranian Copper Industry Co.	Concentrates	Operating	OP	1974		29	Ag, Au, Mo, Re	Phase 1 expansion from 145 to 190kt Cun in concentrates in 2004, phase 2 expansion to 235kt Cu in concs in 2014, phase 3 expansion to 285kt Cu planned for 2015 but postponed. SX-EW plant started in 1997. Slag Flotation Plant in 2016, cap 19ktpy Cu in concs. Also produces 7.2ktpy Mo conc @54% since 1974 and expantion to 10.1ktpy postponed.	190	190	235	235	254	254	
Sarcheshmeh	National Iranian Copper Industry Co.	SX-EW	Operating	OP	1974		29	Ag, Au, Mo, Re	Phase 1 expansion from 145 to 190kt Cun in concentrates in 2004, phase 2 expansion to 235kt Cu in concs in 2014, phase 3 expansion to 285kt Cu planned for 2015 but postponed. SX-EW plant started in 1997. Slag Flotation Plant in 2016, cap 19ktpy Cu in concs. Also produces 7.2ktpy Mo conc @54% since 1974 and expantion to 10.1ktpy postponed.	14	14	14	14	14	14	
Sungun	National Iranian Copper Industry Co.	Concentrates	Operating	OP	2006		30		Cap 150ktpy conc @30% Cu (45ktpy Cu). Phase 2 expansion additional 45ktpy Cu by 2014 and Phase 3 expansion further 62ktpy planned by 2015 but postponed. Slag flotation plant in 2017 cap 12ktpy Cu in concs. Bioleaching plant, cap. 5Ktpy Cu in 2016 (data included in "Nicico other SX-EW mines". Also produces 3.3ktpy Mo concs since 2013 to be expanded by 2.7ktpy.	45	45	70	90	90	102	
Taft Copper Complex	National Iranian Copper Industry Co.	Concentrates	Developing	OP	2016		26		Greenfield project. Open pit mine. Start up in 2016. Cap 118ktpy concentrates @26% Cu (26ktpy Cu). Small SX-EW plant, cap 3ktpy Cu, included in "Nicico other SX-EW Mines"					15	26	26
Israel			**Operating+Developing**									**2**	**15**	**22**	**22**	**22**
Arava Mines	AHMSA Steel Israel Ltd (Altos Hornos de Mexico)	SX-EW	Developing		2014				Cap 22ktpy. Delayed to end 2014			2	15	22	22	22

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Thousand metric tonnes copper

Mine	Operator/Owner(s)	Process	Status	Type (1)	Start Up	Closure/ LOM (2)	Concs. Cu %	Other Metals	Short remarks	2012	2013	2014	2015	2016	2017	Project Cap.
Kazakhstan			**Operating+Developing**							**476**	**481**	**483**	**506**	**602**	**612**	**205**
Kazakhstan			**Exploration+Feasibility**										**2**	**38**	**38**	**131**
Kazakhstan			**Total Status**							**476**	**481**	**483**	**508**	**640**	**650**	**336**
50th October Anniversary	Russian Copper Company	Concentrates	Operating		2006				Started September 2006. Mine life 28 years, annual capacity 45 kt.	45	45	45	45	45	45	
Aktogay	Kazakhmys PLC	Concentrates	Developing	OP	2017			Mo, Ag, Au	Oxide zone 123 MT of ore @ 0.37% Cu, Sulphide zone 2064 MT of ore @ 0.33% Cu. Feasibility in 2012. Started construction in 2013. First oxide copper cathode production in 4Q2015 expected to operate for 11 years @ avg 15 ktpy. First sulphide copper in concentrate production by 2017 to average 90 ktpy in the first 10 years with a peak of approx 100 kt in 2019.						20	90
Aktogay SX-EW	Kazakhmys PLC	SX-EW	Developing	OP	2015	2026			Oxide zone 123 MT of ore @ 0.37% Cu, Sulphide zone 2064 MT of ore @ 0.33% Cu. Feasibility in 2012. Started construction in 2013. First oxide copper cathode production in 4Q2015 expected to operate for 11 years @ avg 15 ktpy. First sulphide copper in concentrate production by 2017 to average 90 ktpy in the first 10 years with a peak of approx 100 kt in 2019.				1	15	15	15
Artemyevskoe	Kazakhmys PLC	Concentrates	Operating	UG	2006	2018		Au, Ag, Sn	Studies underway to extend mine life by up to 10 years from 2018. In July 2014 Kazakhmys announced that will split itself in two with the listed entity keeping the more profitable East Region mines, the Bozymchak, Aktogay and Bozshakol mines and the Koksay project. The remaining assets including the Zhezkazgan and Central region mines and smelters, coal mines and captive power stations would be privatised to Cuprum Holding.	28	28	28	28	28	15	
Benkala	Frontier Mining Ltd 100% (KazCopper LLP)	SX-EW	Operating	OP	2012				Estimated 2.2 million tonnes of contained Copper. Capacity 7ktpy. Production started Aug 2012. Bankable Feasibility Study underway for development of Benkala sulphide resource.	1	3	5	7	7	7	
Bozhakol	Kazakhmys PLC	Concentrates	Developing		2015			Au, Ag, Mo	Aug 2011 approved development. Mineral Resource of 1,2 Mt at 0.35% Cu. First copper production in 2H2015. Mine life of 40 years. Annual copper in concentrate output estimated to be: 100 kt from 2015-2030 and 65 kt from 2031.				20	100	100	100
Boshtchekul	East Point Holding	Concentrates	Operating	UG	2003			Mo, Ag,Au,Se, Co		35	35	35	35	35	35	
Irtysh Complex/ Belousov	Kazakhmys PLC	Concentrates	Operating	UG	1930			Pb,Zn,Au, Erg		25	25	25	25	25	25	
Itauz	Kazakhmys PLC	Concentrates	Operating	OP	1998	2005		Ag	Closed in 2005 and resumed production in July 2013. Included in the Zhezkazgan Complex							
Karchiga	Orsu Metals Corp. (94.75%)	Concentrates	Feasibility	OP	2015		28		Open pit. Concentrate production expected to start early 2015 @38ktpy Cu (conc grade 28%) and SXEW production to start in 2018 @12.7kt but might be delayed as of July 2014 company continuing to seek finance LOM 11.5 years.				2	38	38	38
Karchiga SX-EW	Orsu Metals Corp. (94.75%)	SX-EW	Feasibility	OP	2018				Open pit. Concentrate production expected to start early 2015 @38ktpy Cu (conc grade 28%) and SXEW production to start in 2018 @12.7kt but might be delayed as of July 2014 company continuing to seek finance LOM 11.5 years.						0	13

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Thousand metric tonnes copper

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Koksay	Kazakhmys PLC	Concentrates	Feasibility					Au, Ag, Mo	Total resource of approx 3.4 Mt Cu with an average grade of 0.48%. Mine life of over 20 years with avg annual production of around 80 kt Cu, 60 koz Au, 400 koz Ag and 1 kt Mo in concentrate. Kazakhmys acquired Koksay in June 2014. The project will not incur significant development expenditure until after Bozshakol has commenced production. At scoping phase, exploration and verification drilling commencing in H2 2014						0	80
Kosmurum	Kazakhmys PLC	Concentrates	Closed		2006	2008		Zn	Started May06. Mine was closed in 2008 following a pit wall failure and low prevailing copper prices. Feasibility study underway to assess the extension of the Akbastau open-pit mine and to take the Kosmurun deposit underground. Each mine could produce up to 2 MT of ore per annum.						0	
Kounrad mine SX-EW	Central Asia Metals Plc 60%, Saryarka (gov) 40%	SX-EW	Operating		2012				Kounrad mine operated from 1936 to 2005. Large low-grade wast dump dposit acumulated over 70 years of open-pit mining operations. Capacity 10ktpy cathodes plant started in Apr2012. Plans to expand capacity to 15ktpy in 2016.	7	10	10	10	12	15	
Konyrat/ Sayak Complex	Kazakhmys PLC	Concentrates	Operating	OP	1934			Au, Ag, Mo	The Konyrat mine, OP, started 1934, stopped in Nov 2008 and restarted in June 2012. The original Sayak I and III mines were OP mines that began operations in the 1970s. The current Sayak I and III mines are UG mines accessed by adits from the old open pit mines. Sayak IV UG under development. Ore treated at the Balkash concentrator	40	40	40	40	40	40	
Nurkazgan/Samarskoye	Kazakhmys PLC	Concentrates	Operating	OP	2003			Au	North Nurkazgan stopped production end 2008. Nurkazgan West underground mine started 2009.	55	55	55	55	55	55	
Ridder Concentrator	Kazzinc (Glencore plc 69.61%, Verny Capital JSC 30.39%)	Concentrates	Operating				25		All ores from the Tishinsky, Ridder-Sokolny and Shubinsky mines are treated at the Ridder concentrator. Concs grade 23-27% Cu.	12	12	12	12	12	12	
Shatyrkul	Kazakhmys PLC	Concentrates	Operating	UG	1999			Mo, Au, Ag	The Shatyrkul mine began operations in 1999 as an open pit mine and continued until 2002, when operations were moved underground. Ore treated at the Balkhash concentrator.	10	10	10	10	10	10	
Varvarinskoye (Varvara)	Polymetal International PlC	Concentrates	Operating		2007			Au	Started Nov07. In Nov09, Orsu Metals Corp. completed the sale of Varvarinskoye to Polymetal. Mine life 2021.	8	8	8	8	8	8	
Zhezkazgan Complex	Kazakhmys PLC	Concentrates	Operating	OP. UG	1928			Pb, Zn, Au, Ag	Zhezkazgan Complex includes: OP mining operations called the North mine; UG mines: the South, Stepnoy, East, West, Annensky and Zhomart. Ore is treated at the Zhezkazgan No1 and No2 and Satpaev concentrators. Akchi Spassky, East Saryoba, West Zhezkazgan, Zhomart II are projects under evaluation.	160	160	160	160	160	160	
Zhomart	Kazakhmys PLC	Concentrates	Operating		2006				Former Zhaman-Aybat. Expansion 2008. Included in the Zhezkazgan complex						0	
Zyrianovsk Concentrator	Kazzinc (Glencore plc 69.61%, Verny Capital JSC 30.39%)	Concentrates	Operating	UG	1953			Pb, Zn, Pyrite	The Zyrianovsk concentrator primarily treats polymetallic and copper-zinc ores from the Maleevsky mine as well as ore from the Aleksandrovsky deposit of the Grekhovsky mine (that may be depleted in 2014). Concs grade 18-29% Cu.	50	50	50	50	50	50	

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Thousand metric tonnes copper

Mine	Operator/Owner(s)	Process	Status	Type (1)	Start Up	Closure/ LOM (2)	Concs. Cu %	Other Metals	Short remarks	2012	2013	2014	2015	2016	2017	Project Cap.
Kyrgyzstan			**Operating+Developing**									**2**	**11**	**14**	**14**	**7**
Kyrgyzstan			**Exploration+Feasibility**												**0**	**26**
Kyrgyzstan			**Total Status**									2	**11**	**14**	**14**	**33**
Andash	Robust Resources Ltd 80%, Kyrgyztan Geophysical Expedition 20%	Concentrates	Developing	OP	2015		24.5	Au	Startup was expected for 2013 but delayed. Average annual production rate of 70,000 gold ounces and 7,400 tonnes copper in concentrates @24.5% Cu. Reserve of 539,730 Au ounces and 63,486 tonnes Cu The initial mine life is six years, with resource/reserve expansion likely to significantly increase mine life. Kentor Gold sold share to Robust Resources in 2013				4	7	7	7
Bekbulaktor (Bashkol)	Kentor Gold 80%, Kyrgyztan Geophysical Expedition 20%	Concentrates	Exploration					Au	In Sep 2013 signed a binding agreement with Robust Resources for Robust to farm in to the Bashkol project. Under the terms of the Agreement, Robust has been granted a sole and exclusive right to earn an equity interest in CJSC Kentor. Robust contributes an initial expenditure of A$2 million for the period ending 31 December 2017 to earn a 51% ownership interest and can earn a further 19% ownership if it contributes a further A$5 million to the period ending 31 December 2021.						0	
Bozymchak	Kazakhmys (Samsung)	Concentrates	operating	OP	2014	2030			Preparation works and delivery of equipment impacted by social unrest in Kyrgyzstan. First production delayed from 2012 to 2014 . Capacity 7 ktpy Cu in concentrates. Open Pit mine. Commissioning of the crushing equipment and concentrator commenced in March 2014. Commercial ore processing is expected to begin in the fourth			2	7	7	7	
Talas	Robust Resources Ltd	Concentrates	Feasibility	OP				Au, Mo	Talas include the Taldybulak, Barkol, Kentash and Korgontash licenses. 2010 scoping study for Tadybulak deposit shows possible 26tpy Cu in concs production, mine life 17Y. Orsu Metals sold its 40% to Gold Fields in Jul 2012 and Gold Fields sold to Robust Resources Ltd in Dec 2013. Mineral Resource inferred of 336.2Mt for 4.5Moz Au and 1,178Mbl Cu.						0	26
Laos			**Operating+Developing**							**155**	**155**	**160**	**165**	**170**	**190**	
Laos			**Exploration+Feasibility**											**0**	**0**	
Laos			**Total Status**							**155**	**155**	**160**	**165**	**170**	**190**	
Jiuzhai	Chinalco Yunnan Copper Resources Ltd	Unknown Mine	Exploration					Ag	Drilling started Dec 2011. Exploration target is 80 - 100 million tonnes at a grade of 0.9% -1.0% copper and 120g/t -150 g/t silver. Jiuzhai project is one of the four projects in Northern Laos which are 100% held by Yunnan Copper Sanmu Mining Industry Co. Ltd						0	
Luang Namtha	Amanta Resources Ltd	Unknown Mine	Exploration					Ag, Au, Mo	copper/silver and molybdenum/gold project under a Joint Exploration Agreement with Japan Oil, Gas and Metals National Corporation (JOGMEC). Drilling ongoing.						0	
Phonsavan	PanAust Ltd (19.9% Guangdong Rising Assets Management)	Concentrates	Feasibility	OP	2015			Au	Was renamed KTL and this satellite deposit will provide ore feed to the Phu Kham mill from late 2015 increasing Phu Kham production by around 15-20ktpy Cu							

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Thousand metric tonnes copper

Mine	Operator/Owner(s)	Process	Status	Type (1)	Start Up	Closure/ LOM (2)	Concs. Cu %	Other Metals	Short remarks	2012	2013	2014	2015	2016	2017	Project Cap.
Phu Kham	Phu Bia Mining Litd (Gov 10%, PanAust Ltd 90%(19.9% GRAM))	Concentrates	Operating	OP	2008			Au, Ag	Started Mar 08. Mine life 12 years. Conc grade 25%Cu. Guangdong Rising Assets Management aquired 19.9% of PanAust in 2009. Revised life-of-mine plan that incorporates the KTL (formerly Phonsavan) satellite deposit to provide ore feed to the Phu Kham mill from late 2015, ramping up through 2016 towards an annualised rate of 1.5Mt. Production in 2015 to rise to between 70-75 Kt. Thereafter, higher Phu Kham head grade and the planned contribution from KTL is scheduled to lift annual production to 90-100 Kt Cu until the end of the decade	65	65	70	75	80	100	
Sepon	Minmetals	SX-EW	Operating	OP	2005			Au	Started Mar05. Expansion to 85ktpy in 2012. OZ Minerals sold asset to Minmetals in Jun09.	90	90	90	90	90	90	
Macedonia			**Operating+Developing**							**13**	**13**	**13**	**13**	**13**	**13**	
Bucim/Cukar/Vrsnik	Solway Industries Ltd	Concentrates	Operating	OP	1979			Au, Magnetite	Privatized in 01, bankrupted in 03, reopened in 05 with new owners.	10	10	10	10	10	10	
Bucim/Cukar/Vrsnik (SX-EW)	Solway Industries Ltd	SX-EW	Operating		2011				Privatized in 01, bankrupted in 03, reopened in 05 with new owners. SX-EW plant started end 2011.	3	3	3	3	3	3	
Mauritania			**Operating+Developing**							**45**	**45**	**45**	**45**	**45**	**45**	
Guelb Moghrein	First Quantum Minerals 80%, GM Mines d'Akjoujt SA 20%	Concentrates	Operating	OP	2006	2021	22.5	Au	In 2010, complete 3.8 million tonnes peryear throughput expansion. Magnetite plant in 2H2014. Mine life as of Dec 2013, 8 years	45	45	45	45	45	45	
Mexico			**Operating+Developing**							**571**	**576**	**603**	**762**	**1,006**	**1,037**	**105**
Mexico			**Exploration+Feasibility**												**0**	**401**
Mexico			**Total Status**							**571**	**576**	**603**	**762**	**1,006**	**1,037**	**506**
Angangeo	Grupo Mexico	Concentrates	Developing	UG	2015			Ag, Zn, Pb	Underground polymetallic mine. Potential annual production around 10,400 tons of copper, 3 million ounces of silver, 9,700 tons of zinc, and 3,900 tons of lead. Scheduled to begin production in 1H 2015. Construction started March 2014.				2	10	10	10
Aranzazu	Aura Minerals Inc	Concentrates	Operating	OP, UG	2007		24	Au, Ag	(former El Cobre Project) Production temporarily suspended Jan 09 restarted end 2010. expansion to double production by 2015 remains on hold pending the outcome of the financing and refinancing.	8	8	10	12	14	16	
Bahuerachi	Canada Jinchuan Resources Ltd	Concentrates	Feasibility					Au, Ag, Mo, Zn	Preliminary ecnomic assessment Sep 07. Capacity 83ktpy Cu in concs.						0	83
Bismark	Industrias Peñoles SA	Concentrates	Operating	UG	1992			Zn, Pb, Ag		2	2	2	2	2	2	
Boleo	Baja Mining Corp 49%, Korea Resources Group 51%	SX-EW	Developing		2014			Zn, Co	Cap of 56 ktpy Cu in first 6 years then 38 ktpy. Mine life 23 years. Construction was delayed due to global financial crisis.(Consortium: Korea Resources Corp., LS-Nikko Copper Inc., Hyundai Hysco Co. Ltd., SK Networks Co. Ltd. and Iljin Materials Co. Ltd). First copper production in Sep 2014 and cobalt/zinc production in Nov 2014.			10	40	56	56	56

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Thousand metric tonnes copper

Mine	Operator/Owner(s)	Process	Status	Type (1)	Start Up	Closure/ LOM (2)	Concs. Cu %	Other Metals	Short remarks	2012	2013	2014	2015	2016	2017	Project Cap.
Buenavista del Cobre (former Cananea)	Grupo Mexico	Concentrates	Operating	OP	1896/1980			Au, Ag, Mo	Former name was Cananea. Restarted Oct 2010 after more than 3 years strike. Expansion by approximately 175% from 180 to 495ktpy Cu by 2016: new 188ktpy Cu concentrator in 1H2015 and 2 additional leaching plants of 82kypy Cu total cap. Initially plant III of 32Kt in 4Q 2012 & plant IV of 50Kt in 2Q 2015 but decided to use equipment originally purchased for Tia Maria project allowing to cut delivery time. New SXEW III plant started June 14. Full capacity is expected to be reached in 4Q14, at 120ktpy cathode	125	125	125	150	313	313	
Buenavista del Cobre (former Cananea)	Grupo Mexico	SX-EW	Operating	OP	1896/1980			Au, Ag, Mo	Former name was Cananea. Restarted Oct 2010 after more than 3 years strike. Expansion by approximately 175% from 180 to 495ktpy Cu by 2016: new 188ktpy Cu concentrator in 1H2015 and 2 additional leaching plants of 82kypy Cu total cap. Initially plant III of 32Kt in 4Q 2012 & plant IV of 50Kt in 2Q 2015 but decided to use equipment originally purchased for Tia Maria project allowing to cut delivery time. New SXEW III plant started June 14. Full capacity is expected to be reached in 4Q14, at 120ktpy cathode	55	55	70	150	175	175	
Campo Morado (G-9)	Nyrstar	Concentrates	Operating	UG	2008			Pb, Zn, Au, Ag	Started Oct 2008. Mine life 7-10 yrs. Expansion Jul2010. Farallon Resources, former owner, acquired by Nyrstar Jan 2011.	6	6	6	6	6	6	
Carol	Alta Vista Ventures Ltd	Unknown Mine	Exploration					Ag, Au, Zn	Approximately 5km north of the Piedras Verdes porphyry copper mine. In October 2013 signed a Letter of Intent (LOI) with Tosca Mining allowing Tosca to acquire a 100% interest in the Carol Property. Drilling program started Apr 2014.						0	
Charcas	Industria Minera Mexico S.A. (Grupo Mexico)	Concentrates	Operating	UG	1910			Ag, Zn, Pb, Au	Conc grade at around 30% Cu	2	2	2	2	2	2	
Cozamin	Capstone Mining Corp	Concentrates	Operating	UG	2006	2022		Pb, Zn, Ag	Started Sep06.	22	22	22	22	22	22	
El Arco	Grupo Mexico	Unknown Mine	Feasibility					Au	Feasibility underway. Possible cap 190ktpy Cu. Final decision deferred due to global crisis (Jan09). Considering the development of this project subject to appropriate investment conditions. In 2014, expect to continue investing in land acquisition and exploration and starting an engineering study to determine the best way to optimize the investment in the project.						0	190
El Pilar	Mercator Minerals	SX-EW	Developing		2016	2029			Mine life of 13 years. Higher average production of 39kt Cu cathode for the first 5 years with a life-of-mine average production of 36ktCu. Mercator Minerals Ltd. and Intergeo MMC Ltd (Onexim Group) intend to merge with final decision to be taken in August 2014.					10	39	39
El Salvador/ San Nicolas	Teck Resources Ltd	Concentrates	Feasibility					Zn, Au, Ag							0	
Francisco I. Madero	Industrias Penoles SA	Concentrates	Operating	UG	2002			Au, Ag, Pb, Zn	Copper in Pb and Zn concentrates.	2	2	2	2	2	2	
La Balsa	Binhai Harbour Group HK Co., Limited	SX-EW	Feasibility						Project43-101 Resource Study complete. Economic Scoping Study complete. Feasibility study suspended in May 2012 pending additional funding . Cap 10ktpy. Mine life 7Y. In July 2013 sold La Balsa project to Binhai Harbour Group HK Co., Limited						0	10
La Caridad	Mexicana de Cobre S. A. (Grupo Mexico)	Concentrates	Operating	OP	1979			Au, Ag, Mo	In 2008, acquired Pilares mine, with the intention of operating it as an open-pit facility. In 2011 decided to increase copper production by 40ktpy by sending mineral from the Pilares site to La Caridad concentrator. Startup by 1H2015. Current mineralized material is estimated at 43.4 million tons with 0.789% of copper sulfide content and 0.077% copper oxide.	170	170	170	190	210	210	

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Mine	Operator/Owner(s)	Process	Status	Type (1)	Start Up	Closure/ LOM (2)	Concs. Cu %	Other Metals	Short remarks	2012	2013	2014	2015	2016	2017	Project Cap.
La Caridad	Mexicana de Cobre S. A. (Grupo Mexico)	SX-EW	Operating	OP	1979			Au, Ag, Mo	In 2008, acquired Pilares mine, with the intention of operating it as an open-pit facility. In 2011 decided to increase copper production by 40ktpy by sending mineral from the Pilares site to La Caridad concentrator. Startup by 1H2015. Current mineralized material is estimated at 43.4 million tons with 0.789% of copper sulfide content and 0.077% copper oxide.	25	25	25	25	25	25	
La Verde	Catalyst Copper Corp. 60%, Teck Resources Ltd 40%	Concentrates	Feasibility				26.7	Au, Ag	In Oct 2013 Catalyst signed letter of intent with Teck to acquire 100% in La Verde that terminated in Jan 2014.. LOM 20 years. Avg annual production of 96ktpy Cu in concentrates.						0	96
Luz del Cobre	Red Tiger Mining Inc.	SX-EW	Operating	OP	2012			Au	Mine life 6Y. Develop. was suspended in Oct08, 4 months before start-up as available funding was insufficient to complete the development/plant construction. Production started in May 2012	3	8	8	8	8	8	
Milpillas	Industrias Penoles SA	SX-EW	Operating	UG	2006				Started August 2006. Mine life 15 years.	55	55	55	55	55	55	
Minera Maria	Minera Frisco	SX-EW	Operating	OP	2003			Mo, Ag	Closed underground operations in 1998 and reopened open pit in July 2003.	20	20	20	20	20	20	
Naica	Industrias Penoles SA	Concentrates	Operating	UG	1951			Pb, Zn, Ag, Au	Copper in Pb and Zn concentrates.	3	3	3	3	3	3	
Neg Santa Maria	Negociacion Minera Santa Maria de la Paz	Concentrates	Operating	UG	1770			Ag, Au	Started Cu production in 1993.	20	20	20	20	20	20	
Opata	JABA Inc.	Unknown Mine	Exploration	OP				Mo							0	
Piedras Verdes	Frontera Copper	SX-EW	Operating	OP	2006				Started Sep 2006. Mine life 18Y. Mining suspended Nov08 due to weak market conditions. In May09, Frontera was acquired by 0839073 BC Ltd., a wholly owned subsidiary of Invecture Group, S.A. de C.V. Restarted Oct09.	32	32	32	32	32	32	
Sabinas	Industrias Penoles SA	Concentrates	Operating	UG	1994			Ag, Pb, Zn		9	9	9	9	9	9	
San Javier (Cerro Verde area)	Constellation Copper Corp.	SX-EW	Feasibility	OP					Possible prod of 22 ktpy cathode. Mine life 9 yrs. Company bankrupt. In Mar 2014 Benz Capital Corp. entered into non-biding proposal to buy 100% interest in the project and to start a feasibility study by end 2014.						0	22
San Martin	Industria Minera Mexico S.A. (Grupo Mexico)	Concentrates	Operating	UG	1958			Ag, Zn	On strike since July 2007	5	5	5	5	5	5	
Santa Barbara	Industria Minera Mexico S.A. (Grupo Mexico)	Concentrates	Operating	UG	1921		30	Zn, Pb, Ag, Au		5	5	5	5	5	5	
Suaqui verde	Everim Resources	Unknown mine	exploration					Mo							0	
Terrazas (Cerro Verdo area)	Constellation Copper Corp.	SX-EW	Feasibility	OP				Zn	Possible capacity of 9 ktpy of cathode. Company bankrupt						0	
Tizapa	Industrias Penoles SA (51%), Dowa Mining (39%), Sumitomo Corp (10%)	Concentrates	Operating	OP	2001			Au, Ag, Pb, Zn		2	2	2	2	2	2	
Mongolia			**Operating+Developing**							**143**	**223**	**313**	**333**	**458**	**538**	**75**
Mongolia			**Exploration+Feasibility**										**0**		**0**	
Mongolia			**Total Status**							**143**	**223**	**313**	**333**	**458**	**538**	**75**
Alag Bayan	Central Asia Metals Plc	Unknown Mine	Exploration					Au	Three-hole drilling campaing target for 2011. Located at 100km from Oyu-Tolgoi. 1 Yaer extension of exploration license to 2013						0	
Bronze Fox	Kincora Copper Limited	Unknown Mine	Exploration					Au, Mo	Bronze Fox, Tourmaline Hills and North Fox projects covering over 40km2. Located in sotheast Mongolia along the large Oyu Tolgoi copper belt. 2013 was the fourth year of a nine year exploration period.						0	

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Table1: WORLD COPPER MINES PRODUCTION CAPACITIES 2012 To 2017

Thousand metric tonnes copper

Mine	Operator/Owner(s)	Process	Status	Type (1)	Start Up	Closure/ LOM (2)	Concs. Cu %	Other Metals	Short remarks	2012	2013	2014	2015	2016	2017	Project Cap.
Erdenet	Erdenet Mining & Concentrating (EMC)	Concentrates	Operating	OP	1978			Mo, Te, Se, Ag, Au		140	140	140	140	140	140	
Erdenet	Erdenet Mining & Concentrating (EMC)	SX-EW	Operating	OP	1978			Mo, Te, Se, Ag, Au		3	3	3	3	3	3	
Erdenetin-Ovoo SX-EW	Samsung 51%, Erdenet 49%	SX-EW	Feasibility						Based on oxide and secondary sulfide ores. Capacity 25,000t cathode.						0	
Oyu Tolgoi	66% Turquoise Hill Resources (Rio Tinto 51%), 34% Mongolia Government	Concentrates	Operating	OP	2013		27	Au, Ag, Mo	1.5bt mineral reserve, 26.5Mlb. of copper and 12.9Moz. of gold. Start planned for 2008 but delays in Gov. approvals. Production started 2013. Avg production 425ktpy Cu. Peak single-year prod (year 7) at 800kt. Mine life 59years. Initial prod. from phase 1 open pit mine. Hugo North Extension and Heruga are part of the Oyu Tolgoi mining complex where Entrée Gold Inc retains a 20% interest in the mineral resources of the deposits. Development of the underground mine was suspended on August 2013 and has been delayed until matters with the Government can be resolved and a new timetable agreed. The feasibility study for the expansion of the Oyu Tolgoi is expected in 2014 assessing value engineering and optimization for the mine.		80	170	170	240	320	
Tsagaan Suvarga	Mongolyn Alt (MAK)	Concentrates	Developing	OP	2015		25	Mo, Au, Ag	103Mt Cu resources. Expected production of 300ktpy copper concentrates and 5ktpy Mo concentrates. Worley Parsons awarded in 2012 construction management contract. Expected to start in 2H 2014 but delayed to 2015.				20	75	75	75
Morocco			**Operating+Developing**							**13**	**16**	**26**	**26**	**26**	**26**	
Akka	Managem	Concentrates	Operating	OP	2007			Au	Gold production started 2001 and copper in 2007. 2012 production was 23.4kt of copper concentrates	7	7	7	7	7	7	
Bou Skour	Managem	Concentrates	Feasibility	UG	1958	1978		Ag	Started 1958, closed 1978. Project feasibility underway and expected in 2014						0	
Hajar (Guemassa)	BRPN 30%, ONA 70%	Concentrates	Operating	UG	1992		28	Pb, Zn	CMG (Compagnie Minière des Guemassa) Polymetallic Mines: Pb-Zn-Cu. It operates 2 polymetallic mines in the region of Jbilet in Marrakech. Since 1992, the company produces zinc, lead and copper concentrates from Hajjar's Mine. Starting from 2004, CMG has been operating the Draa Sfar mine. In 2012 production was 18.3kt of copper concentrates.	6	6	6	6	6	6	
Jbel Lassal	Managem	Concentrates	Operating	UG	2013		28		Started 1st quarter 2013 with a production capacity of 22ktpy copper concentrates		2	6	6	6	6	
Oumejrane (Bou N'Hass)	BPRM	Concentrates	Operating	UG	1978, 2013	1996		Pb, Zn	Started 1978, closed 1996 and restarted 4Q2013. Reserves 3.2Mt @2.59% Cu. Production capacity of 26ktpy copper concentrates.		1	7	7	7	7	

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Thousand metric tonnes copper

Mine	Operator/Owner(s)	Process	Status	Type (1)	Start Up	Closure/ LOM (2)	Concs. Cu %	Other Metals	Short remarks	2012	2013	2014	2015	2016	2017	Project Cap.
Myanmar			**Operating+Developing**							**20**	**25**	**25**	**55**	**140**	**140**	**100**
Letpadaung	Wanbao Mining Copper Co.(China North Industries Corp. - Norinco holds 60%)	SX-EW	Developing		2015				Cooperation agreement with government signed on Jun10 to develop the Letpadaung deposit of the Monywa complex that contains three deposits. Expected production of 100ktpy. China Nerin Engineering Co. Ltd responsible for the design of the project. Facing local oposition				25	100	100	100
Monywa	Wanbao Mining Copper Co.(China North Industries Corp. - Norinco holds 60%)	SX-EW	Operating	OP	1983			Ag	Ivanhoe Mines (50%) divested from the mine in Feb 2007 to a Trust. Other 50% held by government. Operational problems reduced production. Closed 2008 reopened 2009. Currently explores two of the three deposits of the Monywa complex (other deposit is Letpadaung). In 2010 Monywa complex was purchased 100% by Wanbao Mining that is developing the Letpadaung deposit. Expansion to 40ktpy in 2015	20	25	25	30	40	40	
Namibia			**Operating+Developing**							**13**	**13**	**13**	**20**	**30**	**30**	**17**
Namibia			**Exploration+Feasibility**												**0**	
Namibia			**Total Status**							**13**	**13**	**13**	**20**	**30**	**30**	**17**
Haib	Teck Resources Ltd, Afri-can Marine Minerals Corp.	SX-EW	Feasibility	OP				Au, Mo	The ore contains an average of 3% to 4% pyrite, which is ideal for bio-heap leaching. The pyrite, being a good heat generator, helps to increase recovery rate.						0	
Kombat West	Grove Export CC	Concentrates	Closed	UG	1905	2007		Ag, Pb, Zn, Cd	Partially flooded in 2005. Restarted Oct07 but due to high operational costs closed in Dec07. March 2010, Weatherly sold mine to Grove Export CC ('Grove')							
Matchless	Weatherly Mining Namibia (Weatherly International Plc 97%)	Concentrates	Operating		2005			Pb	Operated by Tsumeb Corporation Limited until closure in December 1983. Ongopolo Mining Limited started a new mine at the Western Extension orebody in July 2005. Placed on C&M Dec 08 due to weak market conditions and restarted early 2011. Prod 3k tpy for 5 years. End 2012, company decided to develop the Old Matchless Mine in order to extend Matchless Life of Mine.	3	3	3	3	3	3	
Otjihase	Weatherly Mining Namibia (Weatherly International Plc 97%)	Concentrates	Operating	UG	1975			Ag, Au	Placed on C&M in Dec 08 due to weak market conditions and restarted early 2011. Majority of production is sourced from pillars. Prod 4k tpy for 5 years.	6	6	6	6	6	6	
Swart Modder	Africa Huaxia Mining (PTY) Ltd	Concentrates	Operating	OP	2011				Started Nov 2011. Currently on Care and Maintenance	1 on C&M	1	1	1	1	1	
Tsumeb Tailing	Weatherly Mining Namibia (Weatherly International Plc 97%)	Unknown Mine	Feasibility					Pb, Zn, Ag	Feasibility study underway to recover metals from the Tsumeb Tailings Dam. 16Mt @ 0.7% Cu						0	
Tsumeb West	Weatherly Mining Namibia (Weatherly International Plc 97%)	Concentrates	Operating	UG	2003				Placed on C&M Oct 2008 due to weak market conditions. Deep level exploration planned below existing workings.	3 on C&M	3	3	3	3	3	
Tschudi	Weatherly Mining Namibia (Weatherly International Plc 97%)	SX-EW	Developing	OP	2015				Underground mine operated from Oct 2007 to Dec 2008. Start of construction of opencast mine with SX/EW processing plant in Dec 2013. First cathode copper expected Q2 2015. Expected capacity at 17ktpy cathode, mine life 11 years.				7	17	17	17

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Thousand metric tonnes copper

Mine	Operator/Owner(s)	Process	Status	Type (1)	Start Up	Closure/ LOM (2)	Concs. Cu %	Other Metals	Short remarks	2012	2013	2014	2015	2016	2017	Project Cap.
North Korea			**Operating+Developing**							**17**	**17**	**22**	**32**	**32**	**32**	
North Korea			**Exploration+Feasibility**													
North Korea			**Total Status**							**17**	**17**	**22**	**32**	**32**	**32**	
Sangnong	Korea Zinc Industrial Group (KZIG)	Concentrates	Operating	UG	1956			Au	Locaed in Dancheon district of Hamgyeongnam-do.	12	12	12	12	12	12	
Hyesan Youth	Wanxiang Resources 51%, North Korean Ministry of Mining 49%	Concentrates	Operating	UG	1970, 2011			Au, Ag	Located in Ryanggang Province. Possible 33.1Mt @ 1.3% Cu. Mine started 1970 and closed from 1994 to 2009 due to underground flooding. Reopened in Sep 2011 after modernization works with capacity of 50-70ktpy of copper concentrate at around 20-30% Cu.	5	5	10	20	20	20	
Oman			**Operating+Developing**							**25**	**25**	**25**	**25**	**25**	**25**	
Daris	Alara 50%, Al Tamman Trading Establishment LLC 50%	Concentrates	Feasibility	UG				Au	A scoping study level of metallurgical test-work was completed in July 2013. Measured and Indicated JORC Copper resource of 240 024t at 2.37% Copper (Sulphides) and 183 365t at 0.72% Copper (Oxides). Inferred JORC Copper resource of 30 566t at 2.25% Cu (Sulphides) and 1 712t at 0.61% Copper (Oxides)						0	
Shinas-Hatta	Mawarid Mining	Concentrates	Operating	OP	2007		21	Zn, Au	Started May07. Hatta Pit was exhausted in Jan09. Ore production started in Shinas Pit in July 2008. Pre-stripping of the Hatta South Pit started in May 2009. National Mining Company changed name to Mawarid Mining in 2010. Concentrate grade of between 18% and 24% copper	25	25	25	25	25	25	
Washihi	Alara 70%, Al Hadeetha Investments LLC 30%	Concentrates	Feasibility	OP				Au	A scoping study level of metallurgical test-work on drill-hole cores completed in July 2013, based on a 500 000 Mtpa throughput mining operation (with an 8 year mine life). 6.84 Mt Indicated Resource at 0.90% Cu and 0.17g/t Au; and 7.27 Mt Inferred Resource at 0.71% Cu and 0.20g/t Au.						0	
Pakistan			**Operating+Developing**							**20**	**20**	**20**	**20**	**20**	**20**	
Pakistan			**Exploration+Feasibility**												**0**	**200**
Pakistan			**Total Status**							**20**	**20**	**20**	**20**	**20**	**20**	**200**
Reko Diq	Tethyan Copper Comp 75% (Barrick Gold Corp 50%, Antofagasta 50%), Baluchistan Dev. Authority 25%	Concentrates	Feasibility	OP			30	Au	Open-pit mining for 46Y, continuing another 10 years using ore stockpiles created over the years during the mining operation. Production of approx. 600ktpy concs @28-31% Cu containing 200ktpy Cu, transported to the Gwadar port via a 682km long underground slurry pipeline. Delays in negotiations with Government. Feasibility study submitted to the Government of Baluchistan in August 2010. Application for mining lease submitted in February 2011. Baluchistan gov rejected application to mine. Currently seeking monetary damages as compensation for Pakistan's and Balochistan's breaches of TCC's contract and treaty rights.						0	200
Saindak	Balochistan Gov. 35%, Federal Gov. 15%, MCC - China Metalurgical Construction Corp 50%	Concentrates	Operating	OP	1995/2003			Ag, Au, Mo, Pyrite, Magnetite		20	20	20	20	20	20	

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Thousand metric tonnes copper

Mine	Operator/Owner(s)	Process	Status	Type (1)	Start Up	Closure/ LOM (2)	Concs. Cu %	Other Metals	Short remarks	2012	2013	2014	2015	2016	2017	Project Cap.
Panama			**Exploration+Feasibility**												**0**	
Cerro-Colorado	CODEMIN	Unknown Mine	Exploration	OP											0	
Cobre Panama	First Quantum Minerals Ltd 80%, Korea Panama Mining Corp. (LS-Nikko Copper Inc. and Korean Resources Corporation) 20%	Concentrates	Developing	OP	2018		28	Au, Ag, Mo	Former Petaquilla. Three open pits. Higher grade mineralized zone, the Balboa deposit could provide the potential to extend mine life or expand production capacity. Inmet acquired by First Quantum in Mar 2013. Updated production parameters in Jan 2004: Measured and Indicated Resources of 3,3Mt. Installed capacity of about 70Mtpy for first 10 years. Further expansion up to 100 Mtpy beyond Year 10. On the basis of capacity of 70 Mtpa, average production approx 320ktpy on a life-of-mine basis of 34 years. Average annual life-of-mine by-product production of 100Koz Au; 1,800Koz Ag and 3.5 Kt Mo. Average 0.5% Cu grade for first 10 years and 0.37% for remaining mine life. Commissioning end 2017 with production in 2018.							320
Papua New Guinea			**Operating+Developing**							**150**	**120**	**110**	**50**			
Papua New Guinea			**Exploration+Feasibility**											**5**	**170**	**555**
Papua New Guinea			**Total Status**							**150**	**120**	**110**	**50**	**5**	**170**	**555**
Frieda River	Glencore plc 81.82%, Highlands Pacific 18.18%	Concentrates	Feasibility	OP	2020			Au	In Nov 2013 PanAust agreed with Glencore Xstrata to acquire Glencore's interest in the Frieda River. Post the transaction by Sep 2014, the project ownership will be PanAust 80%, Highlands 20%; the PNG Government has an option to acquire up to a 30% interest in the Project. PanAust new scoping study accounts for an average annual production of 100kt Cu and 160 koz Au in concs (Glencore FS indicated 262ktpa Cu first five years, averaging 190ktpa Cu over 20 years. 9.4 MT Cu and 14.8 Moz Au) Large resource together with exploration potential could support staged development growth. Feasibility study for the Horse-Ivaal-Tukai (HIT) copper-gold deposit expected by mid-2015. .						0	100
OK Tedi	PNG Govt	Concentrates	Operating	OP	1984	2015		Au, Mo	Problems with fluorine. Inmet disposed of its 18% in Jan11. Mine life until 2015 but feasibility study underway to extend by another 7 years by a combination of two underground mines and one open pit operation. The majority of the Mine Life Extension Feasibility Study was submitted in 3Q2012 to PNG government for review and approval. Government nationalized PNG Sustainable Development Program Ltd share in the mine at end 2013.	150	120	110	50			
Solwara 1 Project	Nautilus Minerals Inc (Anglo American 11%, Teck Cominco 6.8%, Epion Holidngs 21%)	Concentrates	Feasibility		2017		28	Au	Deep sea Cu/Au project. Prod from onshore facility. Concs @ 28% Cu. Project delayed due to weak market conditions. Possible prod 80ktpy Cu. Environmental Permit for the development received on Dec09. Company in dispute with the Gov of PNG and decided to stop construction delaying start up expected for 2014. In Oct 2013 the arbitrators' award included an order that the State is required to comply with its obligations. In April 2014 agreement signed enabling the Solwara 1 Project to move forward toward production with the full support of the State. Under the Agreement, the State shall take an initial 15% interest in the Project. The State has the option to take up to a further 15% interest within 12 months of the Agreement becoming unconditional.						80	80

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Thousand metric tonnes copper

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Wafi Golpu	Harmony Gold Mining Company 50%, Newcrest Mining 50%	Concentrates	Feasibility	UG	2025			Au	Mineral resource 29 Moz gold and 9 Mt copper. Technical PFS proposes block caving method, copper-gold concentrate, average production profile of 400kozpy Au and 250ktpy Cu, between years 2025-2040, mine life in excess of 25 years. Potential to incorporate a further mine development beneath the existing Golpu reserves that could lead to a mine life of more than 28 years and annual production averaging 580kozpy and 300ktpy Cu between years 2025-2040. Further studies will explore this potential. Feasibility study for exploration shaft options for decision in 2015.						0	250
Yandera	Marengo Mining Ltd	Concentrates	Feasibility	OP	2016			Mo, Au, Re	Possible prod of 125ktpy Cu in concs. Mine life 20Y. Start was expected in 2014 but delayed. Memorandum of Understanding with China Nonferrous Metal Industry's Foreign Engineering and Construction Co Ltd ("NFC"), for the financing, construction and development of Project. Resources 6.5lb Cu.					5	90	125
Peru			**Operating+Developing**							**1,293**	**1,413**	**1,585**	**1,809**	**2,389**	**2,729**	**752**
Peru			**Exploration+Feasibility**										**5**	**80**	**273**	**1,817**
Peru			**Total Status**							**1,340**	**1,428**	**1,585**	**1,814**	**2,469**	**3,002**	**2,569**
Alto Dorado	Candente Resources Corp	Unknown Mine	Exploration					Au							0	
Americana (Yauliyacu)	Compañia Minera Casapalca	Concentrates	Operating	UG	1960			Pb		2	2	2	2	2	2	
Antamina	BHP Billiton (33.75%), Teck (22.5%), Glencore plc (33.75%), Mitsubishi Corp. (10%)	Concentrates	Operating	OP	2001	2027		Zn, Mo, Ag	Expansion of concentrator in Jan08. Further expansion by 1Q 2012. to increase ore throughput by 130 ktpd, Cu prod increase by 30%. Mine life extended to 2027. Major projects in 2014/15 include truck shop expansion and a new water treatment plant. Processing higher proportion of copper ores, less zinc in 2013/14	450	450	450	450	450	450	
Antapaccay	Glencore plc	Concentrates	Operating	OP	2012	2036			Located 10km from Tintaya open pit. Uses Tintaya's infrastructure. Startup coinciding with Tintaya end of life. Tintaya open pit to be used to store tailings. Average annual production of 140ktpy Cu in concs during the useful life of the mine (20 years). In the first ten years, average of 160ktpy Cu. Started production in Nov 2012.	10	120	160	160	160	160	
Atacocha	Milpo Group	Concentrates	Operating	UG	1937			Pb, Zn, Ag		6	6	6	6	6	6	
Austria Duvaz	Minera Austria Duvaz S.A.	Concentrates	Operating	UG	1958			Pb, Zn		2	2	2	2	2	2	
Berenguela	Silver Standard	Unknown Mine	Exploration	OP				Ag, Mn	Indicated resources contain 0.92% Cu.						0	
Cañariaco	Candente Copper Corp	Concentrates	Feasibility	OP	2018		27	Au, Ag	7.5B lbs Measured & Indicated Resources, 1.4B lbs Inferred Resources. Pre-Feasibility incidates production of 350-400 ktpy concs @27% Cu, approx.120ktpy Cu. Mine life 22 years. Exploration and feasibility drilling has recommenced in Dec2012.							120
Catalina Huanca	Catalina Huanca Sociedad Minera	Concentrates	Operating	UG				Pb, Zn, Au		1	1	1	1	1	1	
Cerro Corona	Gold Fields Ltd 92%	Concentrates	Operating	OP	2008	2024		Au	Started Jul 2008. Mine life 2024. FS of sulphide plant is being investigated	40	40	40	40	40	40	
Cerro Lindo	Compañia Minera Milpo (Minera Pampa de Cobre)	Concentrates	Operating	UG	2007				Started Jul 07. Mine life 20 yrs.	12	12	12	12	12	12	

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Thousand metric tonnes copper

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Cerro Verde I Leach Pad	Freeport-McMoRan Copper & Gold Inc. 53.5%, Compañia de Minas Buenaventura 18.5%, Sumitomo 21%	SX-EW	Operating	OP	1977			Ag		80	80	80	80	80	80	
Cerro Verde II (Sulphide)	Freeport-McMoRan Copper & Gold Inc.53.5%, Compañia de Minas Buenaventura 18.5%, Sumitomo 21%	Concentrates	Operating	OP	2006			Ag, Au, Mo	Mining of the sulfide ore (Cerro Verde II) started Dec06. Concentrator expansion from 120,000 metric tons of ore per day to 360,000 metric with incremental annual production of approximately 270kt Cu beginning in 2016. Environmental approval received end 2012. Construction started 1Q13.	240	240	240	240	340	500	
Cerro-Negro	Freeport-McMoRan Copper & Gold Inc.	SX-EW	operating		2012				Considered as Cerro Verde reserves. Restart mining 2012.						0	
Chapi	Compañia Minera Milpo (Minera Pampa de Cobre)	SX-EW	Operating		2006			Ag	Started Jan2006. Mine life 14 years. Undergoing studies for the Chapi Sulphides project to produce concentrates . Temporary suspendion since 2013 but plans to restart prod in 2015.	8	8	8	8	8	8	
Cobriza	Doe Run	Concentrates	Operating	UG	1967			Ag		20	20	10	10	10	10	
Condestable	Cia. Minera Condestable S.A. (Southern Peaks Mining LP 98.68%)	Concentrates	Operating	OP, UG	1964				Raul mine in production. In July 2013 Trafigura sold its 98.68% stake in Compañia Minera Condestable SA (CMC) to Southern Peaks Mining LP, a privately owned Peru-based company.	25	25	25	25	25	25	
Conga	Newmont 51.35%, Compania de Minas Buenaventura 43.65%, International Financial Corp 5%	Concentrates	Feasibility	OP	2016			Au	Potential average production aprox. 90ktpy Cu. (1st 5 years 118 Ktpy). Mine life 19 years. Production expected early 2015 but project may be delayed. In 30 Nov 2011 Newmont announced that, in agreement with the government of Peru, it has suspended construction activities as a result of ongoing protests in the region. In Jun12, decided to move project forward on a “go slow, water first” approach, reducing spending in 2012/2013					30	118	118
Constancia	HudBay Minerals Inc.	Concentrates	Developing		2015			Mo, Ag, Au	Expected production of Y1-5: 118ktpy Cu, Y6-16: 77Ktpy Cu, LOM: 90ktpy Cu. Mine life 28Y. Satellite Pampacancha and Chilloroya deposits expected to add significant tonnage to the resource. HudBay Minerals Inc acquired Norsemont Mining Inc early 2011. Started construction Aug 2012, commissioning late 2014 and commercial production 2Q 2015				50	118	118	118
Coroccohuayco	Glencore plc	SX-EW	Feasibility		2015			Au, Mo	Deposit is being evaluated as a potential open pit satellite mine to expand production further at Antapaccay. Production utilising Tintaya Sx-Ew infrastructure. Mineral Resource of 290 Mt @ 1.03% copper. Potential copper production of up to 100ktpy. LOM 25+ years.				5	50	50	50
Cristo de Los Andes	Antares Minerals	Unknown Mine	Exploration												0	
Cuajone	Grupo Mexico (54.1%), Marmon Corp. (15%), Freeport-McMoRan Copper & Gold Inc. (13.9%)	Concentrates	Operating	OP	1977			Mo, Ag	Two projects to increase productivity through technological improvements: the Variable Cut-Off Grade project and the high pressure grinding rolls (HPGR) project, increasing copper production by 22ktpy by 2013. Additional project to improve the stability of the slopes on the south side of the Cuajone mine, will remove approximately 148 million tons of waste material to improve the mine design without reducing our production levels.t. With this investment, the Company will avoid a reduction in average ore grades between 2014 and 2018. Possible concentrator expansion by 2018: additional 50ktpy Cu.	190	195	212	212	212	212	

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Thousand metric tonnes copper

Mine	Operator/Owner(s)	Process	Status	Type (1)	Start Up	Closure/ LOM (2)	Concs. Cu %	Other Metals	Short remarks	2012	2013	2014	2015	2016	2017	Project Cap.
El Brocal	Compañia de Minas Buenaventura 53.8%	Concentrates	Operating	UG, OP	1956			Zn, Pd, Ag	Produces from Colquijirca polymetalic ore and Marcapunta copper ore. Since August 2013 only treating copper ore.	26	26	26	26	26	26	
El Galeno	Northern Peru Copper Corp (Minmetals, Jiangxi Copper)	Concentrates	Feasibility		2017			Au, Ag, Mo	Anticipated startup for 2014 delayed to 2017. Possible capacity at 140ktpy Cu in concs, averaging 200ktpy in first 5 years. Mine life around 20Y. Ongoing investment.						20	200
Haquira	First Quantum Minerals	Concentrates	Exploration					Mo	Antares Minerals aquired by First Quantum in Dec10. M&I resource of 3.7 Mt of copper equivalent and an inferred resource of 2.4 Mt of copper equivalent. Could produce an average of 190ktpy Cu for a mine life of 20 years. Exploration activities at Haquira have been put on hold while the Company focuses on the community and environmental aspects of the project development. During Q1 2014, discussions with the local communities were started with respect to surface rights and resettlement and the workplan over the course of 2014 includes the identification and definition of basic engineering concepts for the environmental impact assessment.						0	190
Hilarión	Compañia Minera Milpo	Concentrates	Feasibility					Ag, Zn, Pb	Pre feasibility study started Jul 2011						0	
Huaron	Pan American Silver Corp	Concentrates	Operating	UG	1912			Ag, Zn, Pb, Au	Flooded in 1998. Restarted in 2001.	2	2	2	2	2	2	
Invicta	Lupaka Gold	Concentrates	Feasibility	UG				Au, Ag, Zn, Pb							0	
Julcani	Cia. de Minas Buenaventura S.A.	Concentrates	Operating	UG	1940			Ag, Pb, Au	Principally an Ag/Pb mine.	1	1	1	1	1	1	
La Granja	Peruvian Government (Rio Tinto is exploring the project)	SX-EW	Feasibility	OP	2019			Mo, Ag, Au	Inferred resource of 3.6 billion tonnes at 0.51% copper. Mine life of 40 years, Average peak production over 500 ktpa. Several development pathway options. Pre-feasibility on Phase 1 in 2014 of 80ktpy production. Phase 2 development could see capacity rising to 140ktpy and further expansions could increase total production to 500ktpy						0	300
La Huaca	Cadente Copper Corp.	Unknown Mine	Exploration						Acquired through a Gov auction (Oct 07).						0	
Las Bambas	Glencore plc	Concentrates	Developing	OP	2015		35	Au, Ag, Mo	Start-up scheduled for the end 2014 but delayed to 2H2015. Resources of around 1.71 billion tonnes with 0.60% copper. Mine life 23years. LOM average annual production around 300kt Cu in concs. First 5 years average 450ktpy. Started construction in Aug 2012. In Apr 2014 Glencore signed an agreement for the sale of Las Bambas to a consortium owned 62.5% by MMG Limited, 22.5% by GUOXIN International Investment Corporation Limited and 15% by CITIC Metal Co. The transaction is expected to close prior to Q4 2014.				30	300	400	400
Los Chancas	Southern Copper Corp (Grupo Mexico)	Concentrates	Feasibility	OP	2018			Au, Mo	Pre-Feasibility study completed. Possible cap 100ktpy Cu, 7.5 ktpy Mo. Final decision deferred due to global crisis (Jan09). Startup not expected befor 2018						0	100
Lunahuana	Cadente Copper Corp.	SX-EW	Exploration					U, Ag, Au	potential for SX-EW						0	
Magistral	Compañia Minera Milpo	Concentrates	Feasibility	OP				Mo, Ag	Possible 35ktpy Cu in concs. Mine life 15 years. Project delayed due to weak market conditions. Milpo aquired project from Inca Pacific in 2011. Could take up to 2015 to decide on development.						35	35

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Table1: WORLD COPPER MINES PRODUCTION CAPACITIES 2012 To 2017

Thousand metric tonnes copper

Mine	Operator/Owner(s)	Process	Status	Type (1)	Start Up	Closure/ LOM (2)	Concs. Cu %	Other Metals	Short remarks	2012	2013	2014	2015	2016	2017	Project Cap.
Michiquillay	Anglo American (100%)	Concentrates	Feasibility	OP				Mo, Au, Ag	Expected production at 155ktpy Cu with expansion potential to 300 ktpa. Significant molybdenum, gold and silver by-products. Startup expected for 2019 but In 2013, following a review of the concept level study, Anglo decided not to progress the study to the pre-feasibility stage in its existing form, and engaged with the Peruvian government to agree a temporary suspension of acquisition payments to allow for a full review of the conceptual study.						0	155
Mina Justa	Marcobre (Minsur 70%, Korean partners 30%)	Concentrates	Developing	OP	2014 / 2015			Au, Ag	Marcona Copper Project. Expected prod 60ktpy Cu in concs & 50ktpy cathode. Mine life 11.5Y. SX-EW prod starts in 2014 & concs in 2015. Charriot Resources taken over by CST Mining in Jun10. EIA approved in Sep 2010. In 2012 CST sold stake to Minsur				20	60	60	60
Mina Justa	Marcobre (Minsur 70%, Korean partners 30%)	SX-EW	Developing	OP	2014 / 2015			Au, Ag	Marcona Copper Project. Expected prod 60ktpy Cu in concs & 50ktpy cathode. Mine life 11.5Y. SX-EW prod starts in 2014 & concs in 2015. Charriot Resources taken over by CST Mining in Jun10. EIA approved in Sep 2010. In 2012 CST sold stake to Minsur			10	50	50	50	50
Morococha	Pan American Silver Corp 92.2%	Concentrates	Operating	UG	1905			Zn, Pb, Ag	Also includes Manuelita and Anticona.	3	3	3	3	3	3	
Ocros	Condor Resources Inc	Unknown Mine	Exploration					Au, Ag, Mo, Pb, Zn	Drill results in May 08.						0	
Pachapaqui	Korea Zinc Co	Concentrates	Developing					Au, Ag, Pb, Zn	Project on hold. Acquired by Korea Zinc Co in 2010						0	4
Pashpap	Northern Peru Copper Corp (Minmetals, Jiangxi Copper)	Unknown Mine	Exploration					Mo							0	
Picota	Candente Resources Corp	Unknown Mine	Exploration					Au, Ag							0	
Pukaqaqa	Tiomin Resources Inc. 49%, Compañia Minera Milpo 51%	Unknown Mine	Exploration						Med-Ind: 122 Mt @ 0.55% Cu						0	
Puy Puy	Volcan Compañia Minera	Unknown Mine	Exploration					Au, Mo	Close to Toromocho project.						0	
Quechua	Pan Pacific Copper Co Ltd	Concentrates	Feasibility						Expected capacity was 80ktpy Cu and start-up planned for 2014, but in Jul 2011 Pan Pacific announced it would postpone development after finding less than expected reserves in feasibility study. Company focused in the development of Caserones in Chile. Are currently considering resuming the project.						0	80
Quellaveco	Anglo American 81.9%, Mitsubishi Corp. 18.1%	Concentrates	Feasibility	OP	2019			Ag, Mo	Average production of 225 ktpa over the first 10 years. Feasibility study complete. 28Y mine life. Startup expected for 2016 but delayed. In 2013, project was evaluated as part of Anglo asset review, which resulted in a decision to reconfigure the project so that its economic returns are more robust. Feasibility study expected during 2015. During the intervening period, work will continue on the project site, aimed mainly at progressing the Asana river diversion tunnel, along with various social and community programmes, thereby solidifying the already high social support for the project.						0	225
Quiruvilca	Southern Peaks Mining	Concentrates	Operating	UG	1940			Ag, Zn, Pb, Au		2	2	2	2	2	2	
Raura	Cia. Minera Raura S.A.	Concentrates	Operating	UG	1962			Pb, Zn, Ag		4	4	4	4	4	4	

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Rio Blanco	Monterrico Metals plc (Zijin 45%, Tongling 35%, Xiamen C&D 20%)	Concentrates	Feasibility	OP	2017		28	Mo	Avg cap is 190ktpy Cu. Due to start in 2012 but was postponed (Jan 09) due to market conditions and local opposition to the project. Xiamen Zijin Tongguan Investment Development Co., Ltd. tookover Monterrico in 2007. Facing local opposition to develop project.						50	190
San Cristobal (Volcan)	Volcan Compañia Minera	Concentrates	Operating	UG	1970			Pb, Zn	Includes:Ticlio, San Cristóbal, Andaychagua Carahuacra, Zoraida, Tajo Gavilán, Animon and Cerro de Pasco. Possible expansion to 40ktpy in 2015	4	4	4	8	40	40	
Sinchao	Southern Legacy	Unknown Mine	Exploration					Au, Ag							0	
Small Mines		Concentrates	Operating						Julcani, Huachocolpa, Coquijirca, Teresa, San Rafael and others	10	10	10	10	10	10	
Tambogrande	Manhattan Minerals	Unknown Mine	Exploration	OP				Zn, Au, Pyrite							0	
Tia Maria	Southern Copper Corp. (Grupo Mexico)	SX-EW	Developing		2017				Cap 120ktpy. Startup delayed from 2011 to end 2012 but project suspended by governmental action in April 2011 in light of social protests and environment study was rejected by government. Equipment already ordered was redirected to Buena Vista del Cobre expansion (Mexico). End 2013 submitted the new EIA to MINEM. Company expects to receive approval of this study in 3Q 2014 and resume work on the project, with the goal of production start-up late in 2016 but risk of further delays.						20	120
Tintaya	Glencore plc	Concentrates	Closed	OP, UG	1985	2013		Au, Ag	End of life 1Q2013. Antapaccay and Coroccohuayco utilizing Tintaya infrastructures.	38	10					
Tintaya	Glencore plc	SX-EW	Closed	OP, UG	1985	2013		Au, Ag	End of life 1Q2013. Antapaccay and Coroccohuayco utilizing Tintaya infrastructures.	9	5					
Toquepala	Southern Copper Corp.	Concentrates	Operating	OP	1959			Mo, Ag	Expansion project: increase in milling capacity of 60ktpd that should increase concentrate production by 100ktpy Cu and 3,100 tons of Mo. The EIA was presented to MINEM in July 2011. Company expect to get approval of the EIA by end 2014	120	120	120	120	140	200	
Toquepala	Southern Copper Corp.	SX-EW	Operating	OP	1959			Mo, Ag	Expansion project: increase in milling capacity of 60ktpd that should increase concentrate production by 100ktpy Cu and 3,100 tons of Mo. The EIA was presented to MINEM in July 2011. Company expect to get approval of the EIA by end 2014	35	35	35	35	35	35	
Toromocho	Chinalco	Concentrates	Operating	OP	2013			Ag, Mo, As	In 2007 Chinalco bought Peru Copper. Prod of around 250ktpy Cu. Mine life 32Y. Conc to be shiped to Chinalco smelter in China. Start up delayed from 2012 to end 2013 by local oposition. 45% expansion in planned for 2017		5	120	200	250	250	
Zafranal	AQM Copper Inc. (40% Mitsubishi Materials Corp.) 50%, Teck Resources 50%	Concentrates	Feasibility	OP			28	Au	Average annual prod of of 54ktpy Cu in concs (@28% Cu) over 23 years and a SX-EW of avg 6ktpy over 21 years. The Project considers a conventional open pit operation with mine life of approximately 25 years (including two years of pre-stripping and two years of stockpiled feed processing). Pre-feasibility program approved in 2Q2014. The study is expected to be completed over the next 18 months.						0	54
Philippines			**Operating+Developing**							**62**	**85**	**85**	**83**	**83**	**83**	
Philippines			**Exploration+Feasibility**												**4**	**593**
Philippines			**Total Status**							**79**	**100**	**86**	**83**	**83**	**87**	**593**
Batangas/Surigao	Mindoro Resources Ltd	Unknown Mine	Exploration					Au, Ni	Nickel-Cobalt Resources and Copper-Gold Prospects						0	

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Thousand metric tonnes copper

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Boyongan	Philex Mining Corp.	Concentrates	Feasibility	UG	2017			Au, Ag	Silangan Project combines the development of the Boyongan and Bayugo deposits, which are comprised of gold, copper, and silver. The combined Measured + Indicated Mineral Resource for Boyongan is 273MT @ 0.52% Cu and 0.72 g/t Au and, for Bayugo, 125Mt @0.66% Cu and 0.66 g/t Au. Possible 20 years mine life, capacity 48ktpy Cu in concentrates						2	48
Canatuan	TVI Pacific	Concentrates	Closed	OP	2008	2014	19	Au, Ag, Zn	From 2004 to mid-2008, produced gold and silver dorét. March 2009, started production of copper concentrate and in April 2010 production of zinc concentrate. Open-pit ore reserves exhausted end 2013, production stopped 1Q 2014. The processing plant will not be dismantled while the Company continues to assess mine life extension and expansion opportunities, including the possible processing of mineralized waste dump material	7	5	1				
Carmen (Toledo)	Atlas Consolidated Mining & Development Corp. 54.46%, CASOP 45.54%	Concentrates	Operating	OP, UG	1955, 2008			Au, Ag, Pyrite	Closed 1994, started Sep 2008. Capacity around 35ktpy Cu in concs. Expansion mill capacity from 40 to 60ktpd and to ramp-up production from the higher grade Carmen pit increasing production from 2012	41	45	45	45	45	45	
Dinkidi (Dipidio Copper-Gold Project)	OceanaGold (92%) (Merged with Climax Mining)	Concentrates	Operating	OP, UG	2012			Au	Start-up was expected in 2H 2009 but project put on C&M in Dec 08 due to weak market conditions. Sep 2010, completion of the internal economic & technical reoptimisation study to recommence construction. Production strated end 2012. Mine life 16 years. Open Pit operation to produce, on average, 100kozpy Au and 14ktpy Cu. In the first 6 years will be producing around 18ktpy Cu. Open pit (LOM) and Underground year 8+	1	20	20	18	18	18	
Hinoba-An	Copper Development Corp.	Concentrates	Feasibility	OP			25	Mo	Joint Ore Reserves Committee Code (JORC) compliant resource with 1,130,000 tonnes of contained copper, with a planned annual production of 47,665 tonnes of copper for over 15 years in the form of a clean 25% Cu concentrate. The Project is located on Negros Island. In 2013 company has reduced expenditures to the minimum by putting the project on a care-and-maintenance basis and continues to seek prospective buyers for its Hinoba-an copper project						0	48
King King	St Augustine Gold & Copper Ltd	Concentrates	Feasibility	OP	2018			Au	Proven and probable mineral reserve of 617.9Mt at 0.3% Cu and 0.395 g/t Au. Avg annual production of copper contained in concentrates at 52kt in years1-5 and 42kt in LOM and 70kt cathode in years 1-5 and 50kt in LOM. Mine life 22 years, concentrate production starts 2018 and cathode in 2017.						0	52
King King SX-EW	St Augustine Gold & Copper Ltd	SX-EW	Feasibility	OP	2017			Au	Proven and probable mineral reserve of 617.9Mt at 0.3% Cu and 0.395 g/t Au. Avg annual production of copper contained in concentrates at 52kt in years1-5 and 42kt in LOM and 70kt cathode in years 1-5 and 50kt in LOM. Mine life 22 years, concentrate production starts 2018 and cathode in 2017.						2	70
Rapu Rapu	LG International and Korean Resources Corp. (70%), Malaysian Smelting Corp. (25%)	Concentrates	Closed	OP	2006	2013		Zn, Au, Ag	Since start-up, encountered a series of operation/cashflow problems.Prod.suspended in 2007. Lafayette Mining sold operation in Apr08 and mine restarted Oct08 with new owners. Closed November 2013	10	10					
Santo Tomas II /Padcal	Philex Mining Corp.	Concentrates	Operating	UG	1958	2020	23	Au, Ag	New mine started Jan 2006. In Aug:2012, overfload of taillings pound due to heavy rain. Needed to build new pond. Production restarted in March 2013	20	20	20	20	20	20	

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Tampakan	Glencore plc 62.5%, Indophil Resources NL 37.5%	Concentrates	Feasibility	OP	2019			Au	Operated by Sagittarius Mines Inc.(SMI), whose 40% controlling equity is a joint venture among Glencore Xstrata (62.5%) and Indophil Resources NL (37.5%). The 60% non-controlling equity shareholders of SMI are the Tampakan Mining Corp. and Southcot Mining Corp. Estimated to contain 15 Mt Cu and almost 18 Moz Au, with potential for growth. LOM avg production of 375ktpy Cu and avg 450ktpy in first 5 years. Mine lfe 17Y with potential for extension. Startup was expected for 2016 but development delayed by local government introduction of Environment Code that includes a ban on open pit mining in Tampakan area. In Nov 2012, company provided the Government with an updated project development plan considering startup in 2019. Startup dependent on government approvals.						0	375
Poland			**Operating+Developing**							**445**	**445**	**430**	**430**	**430**	**430**	
Lubin	KGHM Polzka Miedz S.A.	Concentrates	Operating	UG	1966			Ag,Pb,Ni, Au,Se	.	65	65	65	65	65	65	
Polkowice-Sieroszowice	KGHM Polska Miedz S.A.	Concentrates	Operating	UG	1968			Ag, Ni, Pb, Au,Se		180	180	180	180	180	180	
Rudna	KGHM Polska Miedz S.A.	Concentrates	Operating	UG	1974			Ag, Au, Ni, Pb, Se		200	200	185	185	185	185	
Portugal			**Operating+Developing**							**81**	**76**	**71**	**71**	**71**	**71**	
Aljustrel	Alumina - Minas do Alentejo, S.A	Concentrates	Operating	UG	1892	1992	24	Pyrite, Zn	Old mine that produced copper until 1992, restarted in 2008 to produce Zn but closed later in the year due to zinc low prices. Restarted production in Jul 2010. Capacity around 80ktpy concs @ 24% Cu.	15	15	15	15	15	15	
Neves Corvo	Lundin Mining Corp	Concentrates	Operating	UG	1988	2024+	25	Ag, Sn	In Jun09 new copper circuit to recover Cu and Zn lost to tailings. Discovered a new copper-rich massive sulphide deposit 1Km of Zambujal copper-zinc orebody. Initial Inferred Resource for the Semblana Copper Deposit of 6.58 million tonnes at a grade of 3.0% copper and 24 g/t silver	65	60	55	55	55	55	
Panasqueira	Beralt Tin & Wolfram S.A.	Concentrates	Operating	UG	1895			W, Sn		1	1	1	1	1	1	
Romania			**Operating+Developing**							**20**	**20**	**20**	**20**	**20**	**20**	
Balan/ Ursului/ Fundu Moldovei	Romanian Government	Concentrates	Operating	UG				Zn, Pb, Ag, Au, As		5	5	5	5	5	5	
Moldova/ Florimunda/ Sasca	Romanian Government	Concentrates	Operating	OP, UG				Pb, Zn, Ag, Au, Mo		5	5	5	5	5	5	
Rosia Poieni	S.C. Cupru Min S.A.	Concentrates	Operating	OP	1988			Ag, Au, Mo, Magnetite	In March 2012, Roman Copper Corp successfully bid €200.8 million for SC Cuprumin SA Abrud's Rosia Poieni porphyry copper-gold mine, winning an open auction. However, Romania government backed out to sell Cupru Min. Estimated reserves of 900kt Cu.	10	10	10	10	10	10	

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Thousand metric tonnes copper

Mine	Operator/Owner(s)	Process	Status	Type (1)	Start Up	Closure/ LOM (2)	Concs. Cu %	Other Metals	Short remarks	2012	2013	2014	2015	2016	2017	Project Cap.
Russia			**Operating+Developing**							**817**	**819**	**866**	**897**	**897**	**895**	**10**
Russia			**Exploration+Feasibility**										**5**	**50**	**73**	**694**
Russia			**Total Status**							**817**	**819**	**866**	**902**	**947**	**968**	**704**
Ak-Sug	Intergeo (Onexim Group)	Concentrates	Feasibility	OP	2018	2043		Au, Mo, Re	Inferred Resources 1.8 Mt Cu. Porphyry project located in Tyva Republic. Expected mine life 25 year. Expected startup in 2018. Average LOM production of 96ktpy, with production at around 170ktpy in years 2-6 and then around 110ktpy in years 7 to 13.						0	100
Aleksandrinsky	Aleksandrinskaya Mining Co.	Concentrates	Operating	OP, UG	1996			Zn, Ag	Ore processed at other locations.	7	7	7	7	7	7	
Buribai (Buribay)	Buribai Mining	Concentrates	Operating	UG				Pb, Zn	Production expected to continue beyond 2020	5	5	5	5	5	5	
Bystrinskoe & Bugdainskoe	Norilsk Nickel	Concentrates	Feasibility	OP	2017			Fe, Au, Ag	a Bystrinskoye and Bugdainskoye deposits . Mine life is about 34 years Production capacity 66 ktpy Cu in concs. Four open-pits, two of which (Verkhne-Ildikansky and Bystrinsky-2) are to be mined during the whole mine life while the other two (Maly Medny Chaynik and Yuzhno-Rodstvenny) are to be commissioned later. Final investment decision subject to project audit and Board approvals. Could start 2017.						10	66
Chebachye	Verkneuralskaya (Russian Copper Co. 95%)	Concentrates	Operating	UG	2008			Zn, Au, Ag		10	10	10	10	10	10	
Dombarovsky (Letneye/ Osenneye)	Uralelectromed (Urals Mining & Metallurgical Co.)	Concentrates	Operating	OP	2000					20	20	20	20	20	20	
Gaisky Gok	Uralelectromed (Urals Mining & Metallurgical Co.)	Concentrates	Operating	OP, UG	1959		20	Pb, Zn, Ag, Au, Co, As, S, Ga,	Expansion in 2009/2010 to 105,000t Cu. Additional open pits may be commissioned by 2016.	105	105	105	105	105	105	
Gumeshevskoye	Uralgidromed (Russian Copper Company)	SX-EW	Operating		2005				Hydrometallurgical plant started Sep 05 at depleted mine Gumeshevskiy in Sverdlovsk region. Capacity 5ktpy cathodes. To operate for 12 years.	5	5	5	5	5	3	
Kingash	Intergeo MMC Ltd (Onexim Group)	Concentrates	Feasibility	OP	2021			Ni	The Kingash project is located in the Krasnoyarsk region. Potential reserves of 5.5 million tonnes of nickel and 2.3 million tonnes of copper. Development of three pits (Kingash, Verkhnekingash, Kuevsk) to produce ore through open-pit mining at a capacity of 18Mtpy ore. Expected production capacity of 46ktpy Ni and 15ktpy Cu in 2021. Mercator Minerals Ltd. and Intergeo MMC Ltd (Onexim Group) intend to merge with final decision to be taken in March 2014.						0	15
Kirovgrad	Kirovgrad Copper	Concentrates	Operating	UG	1931			Pb, Zn	Levikhinsky, Lomovksy, Degtyarsky, Jusinsky Mines.	4	4	4	4	4	4	
Kola Peninsula (Pechenganickel)	Norilsk Nickel	Concentrates	Operating	OP	1939			Ni	Includes Tsentralny, Severny and Kaula mine. Also treats material from Taimyr Peninsula.	20	20	20	20	20	20	
Levikhinskaya	OOO Levinsky GOK	Unknown Mine	Exploration						C1 reserves of 160kt Cu.						0	
Miheevskoye (Chelyabinsk Project)	Russian Copper Company	Concentrates	Operating	OP	2013	2038	23	Au	Celtic Resources acquired Eureka Mining in Dec 2006 and sold project to Russian Copper Co. Open pit mine. Capacity of 63ktpy Cu in concentrates at 23% Cu. Started Dec 2013. Designed cap in 18 months from startup. Mine life 25 years.		2	40	63	63	63	
Murmansk SX-EW	Norilsk Nickel (Kola MMC)	SX-EW	Operating		2003					15	15	15	15	15	15	
Novoshaitaisky	Kirovgrad	Unknown Mine	Feasibility	UG					Development stopped . Could produce 5ktpy.						0	

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Thousand metric tonnes copper

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Podolskoe	Bashkyr Copper	Concentrates	Developing	UG	2014			Zn				2	10	10	10	10
Safyanovskaya	Uralelectromed (Urals Mining & Metallurgical Co.) (40%)	Concentrates	Operating	OP	2000			Zn		35	35	35	35	35	35	
Sibaiskaya	Bashkirsky Combine	Concentrates	Operating	OP, UG	1959			Pb, Zn	Production expected to continue beyond 2020	12	12	12	12	12	12	
Solnechny	Solnechny Mining Combine	Concentrates	Operating	UG				Sn, As	High arsenic ores handled.	11	11	11	11	11	11	
Sorsky	Sorsky Mining	Concentrates	Operating	UG				Mo	Kiyalykh-Uzeh deposit in Siberia.	1	1	1	1	1	1	
Sredneuralsk (Degtyarka)	Sredneuralsk Copper	Concentrates	Operating	UG	1937			Pb, Zn	Uchali UG mine behind schedule.	1	1	1	1	1	1	
Taimyr Peninsula (Norilsk/ Talnakh Mills)	Norilsk Nickel	Concentrates	Operating	OP, UG	1948			Ni	Includes Oktyabrsky, Taimyrsky, Komsomolsky, Zapolyarny mines treated at the Talnakh concentrator. In Sep 2013 Norilsk announced that main priority will be the Polar Division (Taimys Peninsula). The strategic plans for the Polar Division include the maximization of high-margin production utilizing existing infrastructure; the greenfield development of the Skalisty mine, with a 2.4Mtpa ore capacity; and the upgrade of Talnakh to a world class concentrator awarded to Outotec in Dec 2013 and to be fully operational in 2016.	430	430	430	430	430	430	
Tarnyerskoye/ Shemurskoye/ Severnoye	Uralelectromed (Urals Mining & Metallurgical Co.)	Concentrates	Operating	OP, UG	2002			Pyrite, Zn, Ag, Au, Cd, Se, Te		20	20	20	20	20	20	
Tominskoye (Chelyabinsk project)	Russian Copper Company	Concentrates	Feasibility	UG	2015		22		Celtic Resources acquired Eureka Mining in Dec 2006 and sold project to Russian Copper Co in Nov07. Open pit mine. Capacity of 63ktpy Cu in concentrates at 22% Cu. Expected to start in 4Q2015. Development in two phases, 1st with a processing capacity of 17 million tons ore per year and the 2nd one in 2018 expanding to 28Mtpy ore.				5	50	63	63
Turinsk	Svyatogor Mining (UGMK 94.97%)	Concentrates	Operating	UG	1944					4	4	4	4	4	4	
Uchalinsk	UGMK 38%, Bashkortostan State 38%	Concentrates	Operating	UG	1968			Pb, Zn	Includes Uchalinskoye, Molodyozhnoye, Uzelginskoye deposits.	55	55	55	55	55	55	
Udokan	Metalloinvest	SX-EW	Feasibility	OP	2020			Mo, Ag	Metalloinvest won development licence in Sep08. Baikal Mining Company is the operator. 2.75 bl tons of ore @ 0.97% Cu for a copper resource of 27Mt. Reserves of 16Mt. Planned 1st stage development of 150ktpy Cu SX-EW by 2014 increasing to 500ktpy by 2016 but start-up delayed. In May 2014 signed a Strategic Cooperation Agreement with HOPU Investments private equity firm regarding arrangement of project financing and attraction of equity and long-term debt financing. Plans to form an investment Consortium with HOPU comprising major Chinese players in the industrial sector and financial institutions.						0	450
Urupsky/Bykovsky	Urupsky Mining (UGMK)	Concentrates	Operating	UG				Zn, Cd, S, Ga, Ge, In, Se, Te		8	8	8	8	8	8	
Volkovskoye	Svyatogor Mining	Concentrates	Operating	UG	1926			Pb, Zn		8	8	8	8	8	8	
Vostokolovo	Novosibirsk	Concentrates	Operating		2006			Sn	Mainly a tin producer.	3	3	3	3	3	3	

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Vysokogorsky Plant	EAM Group 20%, Cheremshanka 19.95%, Niizhny Tagil 18.95%, Elita-Kov 17%	Concentrates	Operating	Mine Waste	1995			Iron	Processing iron ore waste pile for copper.	10	10	10	10	10	10	
Yubileinoe	Bashkyr Copper	Concentrates	Operating	UG	2006			Zn, Ag		28	28	35	35	35	35	
Saudi Arabia			**Operating+Developing**							**7**	**10**	**10**	**15**	**50**	**63**	**53**
Saudi Arabia			**Exploration+Feasibility**											**2**	**6**	**6**
Saudi Arabia			**Total Status**							**7**	**10**	**10**	**15**	**52**	**69**	**59**
Al Masane	Arabian American Development Co. 50%	Concentrates	Operating	UG	2011	2023	22	Zn, Au, Ag	Al-Masane Al-Kobra Mining Co formed in Oct 07 to develop the deposit. The process plant will annually produce 35ktypy copper concentrate (22% Cu) 45ktpy zinc concentrates, 7,600 oz of gold and 193,000 oz of silver. Proven mineral reserves to support mining operations for 11.5 years. Additional inferred reserves expected to extend life of mine. Started Dec 2011.	5	8	8	8	8	8	
Al-Amar	Ma'aden Saudi Arabian Mining Company	Concentrates	Operating		2008			Zn, Au	Started Jan 08.	2	2	2	2	2	2	
Jabal Sayid	Barrick Gold Corp. 70%. Alujain Corp. 30%,	Concentrates	Developing	OP	2015	2030	25	Au, Ag	Project aquired by Equinox with the takeover of Citadel Resources end 2010. Barrick Gold acquired Equinox Minerals in June 2011.Contains 1.2bl lb Cu reserves. Production at avg 53 ktpy Cu over the first five years (concs @ 25%Cu). Mine life 15Y. Production expected in 2H2012 but delayed to late 2015 until operation are in compliance with standards for safety and security in Saudi Arabia. The previous owner designed the mine in compliance with Western Australia safety and security standards. In Jul 2014 signed agreement with Ma'aden where each company will own 50% of the new joint venture. The acquisition expected to be completed in 4Q2014.				5	40	53	53
Khnaiguiyah	Alara Resources 50%, United Arabian Mining Company (Manajem) 50%	Concentrates	Feasibility	OP	2016		25	Zn	DFS completes April 2013. Life of Mine 13 years (9 years mining - 4 years stockpile reclaim) at 2Mtpa throughput. For LOM, annual prod of 1.4MT of zinc concentrate (775kt Zn) and 210kt of copper concentrate (52kt Cu). First 7 years of full production show an annual average of 80ktpy Zn and 6kt Cu o with peak production at 99kt Zn and 8.3kt Cu. Startup 2016					2	6	6
Serbia			**Operating+Developing**							**63**	**63**	**63**	**63**	**63**	**63**	
Cerovo	Rudarsko-Topionicarski Basen Bor (RTB Bor)	Concentrates	Operating	OP	1994	2002			Closed in January 2002. With favorable business environment and market conditions restarted in 2011. RTB Bor is modernizing and expanding its mines to increase gradually by 2021 total production of all its mines to 400ktpy of concentrates (around 80ktpy Cu) to meet new company smelter requirements. RTB Bor total copper in concentrate production in 2012 was 35ktpy.	5	5	5	5	5	5	
Jama	RTB Bor	Concentrates	Operating	UG	1904		20	Au, Ag	Producing well below capacity for the last few years due to war profitability and environmental issues. RTB Bor is modernizing and expanding its mines to increase gradually by 2021 total production of all its mines to 400ktpy of concentrates (around 80ktpy Cu) to meet new company smelter requirements. RTB Bor total copper in concentrate production in 2012 was 35ktpy.	8	8	8	8	8	8	

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Table1: WORLD COPPER MINES PRODUCTION CAPACITIES 2012 To 2017

Thousand metric tonnes copper

Mine	Operator/Owner(s)	Process	Status	Type (1)	Start Up	Closure/ LOM (2)	Concs. Cu %	Other Metals	Short remarks	2012	2013	2014	2015	2016	2017	Project Cap.
Majdanpek	RTB Bor	Concentrates	Operating	OP	1961		20	Au, Zn, Pb	Producing well below capacity for the last few years due to war profitability and environmental issues. RTB Bor is modernizing and expanding its mines to increase gradually by 2021 total production of all its mines to 400ktpy of concentrates (around 80ktpy Cu) to meet new company smelter requirements. RTB Bor total copper in concentrate production in 2012 was 35ktpy.	30	30	30	30	30	30	
Timok Project	Rakita d.o.o., (Freeport-McMoRan Copper & Gold Inc. 55%, Reservoir Minerals 45%)	Concentrates	Exploration					Au	Seven exploration permits in the highly prospective Timok Magmatic Complex, eastern Serbia that are held by Rakita d.o.o., a Serbian company in which Freeport and Reservoir hold 55% and 45% indirect ownership interests respectively. Close to Bor and Majdenpek high-sulphidation and porphyry copper mines. Freeport have exercised their option to sole fund all exploration work to the completion of a bankable feasibility study and is the operator of the Project. Results in Dec 2013 from five drill holes reported two of which intersected high-grade copper-gold mineralization in the high-sulphidation epithermal zone in the Cukaru Peki target.						0	
Veliki Krivelj	RTB Bor	Concentrates	Operating	UG	1982		20	Mo	Producing well below capacity for the last few years due to war profitability and environmental issues. RTB Bor is modernizing and expanding its mines to increase gradually by 2021 total production of all its mines to 400ktpy of concentrates (around 80ktpy Cu) to meet new company smelter requirements. RTB Bor total copper in concentrate production in 2012 was 35ktpy.	20	20	20	20	20	20	
South Africa			**Operating+Developing**							**101**	**85**	**82**	**72**	**31**	**32**	
South Africa			**Exploration+Feasibility**												**0**	
South Africa			**Total Status**							**101**	**85**	**82**	**72**	**31**	**32**	
Black Mountain	Vedanta Zinc International	Concentrates	Operating	UG	1979	2020		Pb, Zn, Ag	Mainly a Zn, Pb mine. Sold by Anglo American to Vedanta in Feb 2011. Production in Deeps is currently taking place between Levels 33 and 49. A production rate of 1.69Mt per annum is scheduled for Deeps from 2014 Funtil end of Life of Mine in 2020.	5	4	4	4	4	4	
Impala Platinum	Impala Platinum Ltd.	Concentrates	Operating	UG				Pt	By-product of Pt.	8	8	8	8	7	8	
Marikana/ Transvaal	Aquarius Platinum Ltd	Concentrates	Operating	UG	1985			Pt	By-product of Pt.	1	1	1	1	1	1	
Nkomati	African Rainbow Minerals (ARM), Norilsk	Concentrates	Operating	OP, UG				Ni	Nickel mine producing about 3,000 tpy by- product copper. Expansion in 2010 to 6.4ktpy Cu	10	10	7	7	7	7	
Palabora	Palabora Mining Co. (Industrial Development Corporation of South Africa 20%, Hebei Iron and Steel Group 35%, General Nice 20%, Tewoo 20%, CAD Fund 5%)	Concentrates	Operating	OP, UG	1965	2015		Ag, Au, Ni, Pg, Zr, U	Open pit closed April 2002. Current mine life until end 2015. Rio Tinto divested its 57.7% effective shareholding in the company and Aglo American of its 16.8% effective July 2013. Mine closes end 2015.	65	50	50	40			
Platreef	Ivanhoe Mines 90%, Japanese consortium (Itochu Corporation; JOGMEC; JGC Corporation) 10%	Concentrates	Exploration	UG				Au, Ni, Cu, PGE	Thick, high-grade Flatreef platinum-palladium-gold-nickelcopper-rhodium deposit. Inferred Resource 410 Mt @ 3.3 g/t 4PE, 0.32% nickel, 0.18% copper, containing 1,488 Mlb Cu. Approval to begin sinking bulk-sample Shaft #1 received in September 2013.						0	

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Thousand metric tonnes copper

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Rooipoort	Caledonia Mining Corp.	Concentrates	Exploration					PGM, Ni							0	
Rustenburg/ Amandelbult/ PPRust	Anglo American Platinum Corp.	Concentrates	Operating	UG				PGM, Ni, Au	Includes Union, Leplats, BRPM.	12	12	12	12	12	12	
Spain			**Operating+Developing**							**106**	**110**	**110**	**106**	**124**	**154**	**37**
Spain			**Exploration+Feasibility**												**0**	**12**
Spain			**Total Status**							**106**	**110**	**110**	**106**	**124**	**154**	**49**
Aguablanca	Lundin Mining Corp	Concentrates	Operating	OP	2005	2015	6	Ni, PGM, Au	Primary a Nickel mine. In Dec2010 a slope failure on the southwest wall open pit affecting the main access ramp which has curtailed operations, that restarted in Aug 2012. Producing bulk concentrate, 7% Ni, 6% Cu	2	6	6	2			
Aguas Tenidas	Trafigura Beheer B.V.	Concentrates	Operating	UG	2008	2020		Zn, Pb	82ktpy of concentrates. Started production Dec 08. Possible re-start of the Sotiel Mine. Currently building a new treatment pant and expanding capacity from 2.2 Mtpy to 4.4Mt by early 2016. Urion Minerals International B.V. an indirect, wholly-owned subsidiary of Trafigura Beheer B.V. aquired Iberian Metals Corp in early 2013.	30	30	30	30	40	45	
EVBC	Orvana Minerals Corp.	Concentrates	Operating	UG	2011	2018		Au, Ag	El Valle-Boinas/Carles (EVBC). Brownfield (former Rio Nacea operations). Underground. Started May 2011. Mine life: 7 years. Production 3.9ktpy Cu in concs. The abandoned El Valle pit will be used as the tailings impoundment.	4	4	4	4	4	2	
Las Cruces	First Quantum Minerals Ltd	SX-EW	Operating	OP	2008	2022			Started May 08. SX-EW plant delayed to Mar 09 due to suspension of autorization of DRS in May08. May produce ore for smelters depending on market conditions. Mine life as of Dec 2013 is 9 years	70	70	70	70	70	70	
La Zarza	Ormonde Mining	Concentrates	Feasibility	OP	2018			Pb, Zn, Au, Ag	Brownfield projects. 61Mt grading 0.8% Cu, 0.9g/t Au, 0.6% Pb, 2.0% Zn and 5.7g/t Ag. Exploration joint venture with Antofagasta Minerals since 2009 that funded exploration activities but has withdrawn from the joint venture in 2012. Start up was expected for 2015 but will be probably delayed. Ormond currently evaluating potential divestment of its interest in the Project.						0	12
Rio Tinto Mines	EMED Mining	Concentrates	Developing	OP	1970, 2016		23	Pb, Zn, Ag, Au, Pyrite	Former Rio Tinto mine that was put on C&M in 2001. Acquired by EMED in 2007. Production expected end 2012 but delayed to 2016. Capacity 37Ktpy Cu. Open pit. 14years mine life. Xiangguang Copper Co. entered into conditional agreements with EMED Mining to fund US$30 million in exchange for a 10% ordinary equity position in EMED Mining and the grant of limited off-take rights over copper production.					10	37	37

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Table1: WORLD COPPER MINES PRODUCTION CAPACITIES 2012 To 2017

Thousand metric tonnes copper

Mine	Operator/Owner(s)	Process	Status	Type (1)	Start Up	Closure/ LOM (2)	Concs. Cu %	Other Metals	Short remarks	2012	2013	2014	2015	2016	2017	Project Cap.
Sudan			**Exploration+Feasibility**											**2**	**25**	**50**
Hassai	Ariab Mining Company (La Mancha Resources Inc., 40%)	Concentrates	Feasibility	UG	2016			Au	The Hassaï mining area has been in operation since 1992 (producing gold), with over a dozen open pits developed. Most of the ore mined to date comes from the enriched upper zone of a much larger mineralized system. The deeper VMS deposits are below. Inferred resource of tonnes of 400,000 tonnes of copper. Mine life 10Y. Capacity around 50tpy Cu in concs in fisrt years. Total LOM production is 322kt Cu. La Mancha acquired by Weather Investments II S.à r.l. end 2012. Was expected to start in 2015 but delayed.					2	25	50
Sweden			**Operating+Developing**							**98**	**104**	**116**	**117**	**118**	**118**	
Sweden			**Exploration+Feasibility**												**0**	
Sweden			**Total Status**							**98**	**104**	**116**	**117**	**118**	**118**	
Aitik	Boliden Mineral AB	Concentrates	Operating	OP	1968			Au, Ag	Expansion to 100ktpy Cu in 2010. Aitik's ore production is expected to reach full capacity – 36 million tonnes of ore – in 2014. Mine life extended to 2030. Currently investigating the potential for increasing production at Aitik to 45 million tonnes per annum and, at the same time, extending the mine's lifespan, with a decision expected in 2014.	80	90	100	100	100	100	
Boliden Area	Boliden Mineral AB	Concentrates	Operating	OP, UG	1940			Zn, Pb, Au, Ag	Renstrom, Kristineberg, Kankberg and Maurliden Mines.	14	10	10	10	10	10	
Garpenberg	Boliden Mineral AB	Concentrates	Operating	UG	1952			Zn, Pb, Au, Ag	Garpenberg's current capacity is 1.4 million tonnes of ore annually and will be expanded to 2.5 million tonnes by the end of 2015. Copper production will increase. Mine life extended to 2030	1	1	2	3	3	3	
Laver	Boliden Mineral AB	Unknown Mine	Exploration					Au, Ag	On-going conceptual study. Inferred Mineral Resource (JORC), 690 Mt, 0.20% Cu, 0.12 g/t Au, 2.8 g/t Ag, 35 g/t Mo. Test mining of 3500 t of mineralization in 2013.						0	
Zinkgruvan	Lundin Mining Corp.	Concentrates	Operating	UG	2010	2023+		Zn, Au, Pb	Primary a zinc mine producing Zn/Pb concs. New copper circuit started in 1H2010.	3	3	4	4	5	5	
Tanzania			**Operating+Developing**							**12**	**25**	**25**	**25**	**25**	**25**	
Bulyanhulu	Barrick Gold Corp	Concentrates	Operating	UG	2001			Au	Principally a gold mine.	3	3	3	3	3	3	
Buzwagi	Barrick Gold Corp	Concentrates	Operating	OP	2009			Ag	Mine life 10 years. Started April09.	4	4	4	4	4	4	
Copper Oxide Ore	several small local producers	Concentrates	Operating		2012				Copper Oxide Ore produced by several small producers treated at Danformation smelter in Tanzania that started mid 2012..	5	18	18	18	18	18	
Thailand			**Exploration+Feasibility**												**0**	**30**
Puthep	PanAust Ltd 51%, Padaeng Industry Co. 49%	SX-EW	Feasibility	OP					Targetting 25-30ktpy cathode. Mine life 8 years. PanAust commenced a trade sale process for the Puthep Copper Project in conjunction with its joint venture partner, Padaeng Industry Public Company Limited during the first half of 2011. With no plans to develop the asset and no purchaser emerging from the sales process, the Company has recognised an impairment provision of the total investment in Puthep as at 31 December 2013						0	30

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Table1: WORLD COPPER MINES PRODUCTION CAPACITIES 2012 To 2017

Thousand metric tonnes copper

Mine	Operator/Owner(s)	Process	Status	Type (1)	Start Up	Closure/ LOM (2)	Concs. Cu %	Other Metals	Short remarks	2012	2013	2014	2015	2016	2017	Project Cap.
Turkey			**Operating+Developing**							**108**	**108**	**110**	**113**	**115**	**114**	**26**
Turkey			**Exploration+Feasibility**												**0**	
Turkey			**Total Status**							**108**	**108**	**110**	**113**	**115**	**114**	**26**
Kure	Eti Bakir A.S. (Cengiz Holding)	Concentrates	Operating	OP, UG			19	Pyrite	Kastamonu Kure mining complex include 3 open pit and 1 undergroud mines, with a total producing capacity of 90ktpy concentrates averaging 18-20% Cu	17	17	17	17	17	17	
Cayeli	First Quantum Minerals Ltd	Concentrates	Operating	UG	1994	2019		Zn, Au, Ag	Shaft expansion in 2008. The mine benefiting from the commissioning of a second new ore pass in mid 2014. The improved materials handling, together with the extension of the shotcrete slickline deeper into the mine and a continued focus on ground conditions, should ensure a more constant supply of feed to the processing plant. Estimated mine life of 6 years (basis 2013) with potential for an additional 3 years	35	35	35	35	35	35	
Cerattepe	First Quantum Minerals Ltd	Concentrates	Developing	OP, UG				Ag, Au, Pyrite	Startup forseen for 2009 delayed due to legal proceedings. Development suspended in Oct 08.						0	20
Çopler	Alacer Gold 80%, Lydia Maden İşletmeleş 20%	Concentrates	Developing	OP	2014			Au, Ag	Currently a gold mine. Will start producing copper in 2014. Mine life 2025.			2	5	7	6	6
Lahanos (Giserun)	Demir Export	Concentrates	Operating	OP, UG	1990, 2006			Zn	Trial mining 1990/91. Commissioning the Lahanos concentration plant in 1992, Closed mid 1993 due to low metal prices. Restarted 2H 1994 but closed end 1997 due to same reasosn. Restarted 2H 2006. Produces copper/zinc concentartes @ 21% Cu. Since 2010 copper ore exploration studies have been conducted at the Şamlı Iron Mine with drilling started early 2011.	17	17	17	17	17	17	
Murgul (Artvin)	Eti Bakir A.S. (Cengiz Holding)	Concentrates	Operating	OP					Artvin Murgul mining complex include 3 open pit mines, with a total producing capacity of 75ktpy concentrates averaging 22% Cu	17	17	17	17	17	17	
Halilaga	Teck 60%, PilotGold Inc 40%	Concentrates	Feasibility				35		Project-first resource estimate was completed in 2012, returning an Indicated resource of 1.665 million oz Au at 0.31 g/t Au and 1.112 billion lbs Cu at 0.30% Cu (168,167,000 tonnes). Possible production of concentates grading35-40% Cu. 92.1Kozs Au/yr avg production and 40ktpy Cu/ avg in mine life of 14 years. Teck Resources Limited's Turkish subsidiary is the project operator.						0	
Hazine Magara (Gümüshane)	Gumustas Madencilik ve Ticaret A.S.	Concentrates	Feasibility	UG				Au, Ag, Zn, Pb	Hazine Magara (Gümüshane, North Eastern Turkey) Gold-Silver-Zinc-Lead-Copper Project. DAMA conducted frilling.						0	
Siirt Madenköy	Park Elektrik	Concentrates	Operating	UG	2006			Zn	Annual maximum capacity of the concentration facility is 100kt of copper concentrates @ 20-24% Cu.	22	22	22	22	22	22	
Uganda			**Exploration+Feasibility**												**0**	
Kilembe	Vangold Resources Ltd	Concentrates	Exploration	UG					Former Arimetco plant (2004). Planned upgrade to 4ktpy. Copper Mesa purchased Ste Genevieve Resources in Mar08.						0	

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Table1: WORLD COPPER MINES PRODUCTION CAPACITIES 2012 To 2017

Thousand metric tonnes copper

Mine	Operator/Owner(s)	Process	Status	Type (1)	Start Up	Closure/ LOM (2)	Concs. Cu %	Other Metals	Short remarks	2012	2013	2014	2015	2016	2017	Project Cap.
United States			**Operating+Developing**							**1,791**	**1,787**	**1,853**	**1,942**	**1,976**	**2,087**	**168**
United States			**Exploration+Feasibility**											**36**	**102**	**1,264**
United States			**Total Status**							**1,791**	**1,787**	**1,853**	**1,942**	**2,012**	**2,189**	**1,432**
Ann Mason	Entrée Gold Inc	Concentrates	Feasibility	OP				Mo	Preliminary Economic Assessment envisions an open pit with an initial 24 year mine life. Over LOM estimated production of annual average of 97kt Cu and LOM production of 5.14 billion pounds of copper and 36.4 million pounds of molybdenum. Started pre-feasibility drilling in july 2014						0	97
Bagdad	Freeport-McMoRan Copper & Gold Inc.	Concentrates	Operating	OP				Mo, Ag	Concentrate leach converted to Molybdenum production in 2009	95	95	95	95	95	95	
Bagdad	Freeport-McMoRan Copper & Gold Inc.	SX-EW	Operating	OP				Mo, Ag	Concentrate leach converted to Molybdenum production in 2009	12	12	12	12	12	12	
Bingham Canyon	Kennecott	Concentrates	Operating	OP	1904		23	Mo, Ag, Au	The Cornerstone pushback will reach first ore in 2018 and extend mine life to 2030. Underground development strategy under review. Massive landslide in April 2013, and concentrator back to full capacity only in early 2014. Removal of slide material largely completed by the end of 2015. Medium term production expected to be constrained: 2014-15: ~150-180kt per year	280	280	280	280	280	280	
Carlota	KGHM	SX-EW	Operating	OP	2008				Carlota was implementing a mine closure plan and was expected to continue mining through Q2 2014 and residual leaching operations until 2017.	34	34	20	15	15	10	
Chino (Santa Rita)	Freeport-McMoRan Copper & Gold Inc.	Concentrates	Operating	OP	1911			Mo, Au, Ag	Mining put on C&M end 2008; only risidual leach continued from existing leach stockpiles. 2010 restarted mining and milling activities and planned rates are expected to be achieved by the end of 2014.	80	80	110	110	110	110	
Chino (Santa Rita)	Freeport-McMoRan Copper & Gold Inc.	SX-EW	Operating	OP	1911			Mo, Au, Ag	Mining put on C&M end 2008; only risidual leach continued from existing leach stockpiles. 2010 restarted mining and milling activities and planned rates are expected to be achieved by the end of 2014.	55	55	55	55	55	55	
Chloride Copper Mine (Emerald Isle)	Sierra Resources Group Inc	SX-EW	Developing	OP	2016				Former Arimetco plant (2004). Planned upgrade to 4ktpy. Expected to start in 2014 but delayed.					1	4	4
Continental East (Butte)	Montana Resources Corp.	Concentrates	Operating	OP	1984			Mo, Ag, Au		40	40	40	40	40	40	
Copperwood	Highland Copper Inc.	Concentrates	Feasibility	UG	2016		23	Ag	Expected average production at around 28ktpy of copper. Conc grade 23%. Mine life 13 years. All major permits obtained in 2013. Acquired from Orvana Minerals Corp in Jul 2014					6	28	28

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Thousand metric tonnes copper

Mine	Operator/Owner(s)	Process	Status	Type (1)	Start Up	Closure/ LOM (2)	Concs. Cu %	Other Metals	Short remarks	2012	2013	2014	2015	2016	2017	Project Cap.
Copper Chief	American CuMo Mining Corp.	Unknown Mine	Exploration						The Copper Chief project is located within a 65-mile mineral belt known as the Walker Lane Trend. The belt hosts numerous gold, silver and copper mines and deposits. Significant historical past producers of gold and silver operated in the immediate vicinity of the project. Copper Chief's primary target is a +200 million ton copper-silver-indium deposit with potential gold and gallium by-products.						0	
Copper Creek	Redhawk Resources Inc.	Unknown Mine	Exploration	UG				Mo	Pre-Feasibility in 2013						0	
Copper Flat	THEMAC Resources Group Limited	Concentrates	Feasibility	OP	2016			Mo, Au, Ag	Proven and Probable mineral reserves of 98.118 million tons containing 608.5 million pounds of copper, 18.1 million pounds of molybdenum, 295,000 ounces of gold and 6.48 million ounces of silver. Possible annual average production of 23kt Cu for a mine life of 11 years.					5	23	23
Cumo	American CuMo Mining Corp.	Concentrates	Feasibility				20	Mo, Ag, Re, W	5.98 billion tons containing 4.47 billion lbs molybdenum (MoO3), 8.82 billion lbs Cu, 383.2 million ounces silver and 249.1 million lbs tungsten. Expected production between 20-25 ktpy Cu in concentrates at 20% Cu. Mine life minimum 40 years.						0	20
Eagle	Lundin Mining Corp.	Concentrates	Operating	UG	2014	2023		Ni, Co, PGM, Au	Construction began in 2010 with first production expected in late 2013 but delayed. Delivery of first ore from mine to mill was in Jul 2014. Ramp-up of production is expected by early Q4/14, with full commercial production expected during Q2/15. Annual production over the first three full years (2015-2017) at approx. 23kt Ni and 20kt Cu, with additional by-product credits of precious metals and cobalt Capacity 13.2Kt Cu over 8 years. Rio Tinto sold Eagle project to Lundin Mining Corp in 3Q 2013				2	20	20	20	
Florence	Curis Resources Ltd	SX-EW	Feasibility		2016				Insitu SXEW, Former BHP project with prefeasibility conducted 1999. Cursis prefeasibility study conducted in Q1 2013. Possible capacity of 35ktpy cathode.					20	35	35
Idaho Cobalt Project	Formation Capital Corp.	SX-EW	Developing	UG	2016			Co	Construction begun 1st Q10. Startup slated 1Q2014. Capacity 2ktpy. In May, 2013, construction was suspended owing to weak cobalt prices and volatile market conditions.					1	2	2
Johnson Camp	Nord Resources	SX-EW	Operating		1990				Closed 2003. New ore leaching began feb 2009, suspended in Jul 2010. Production from residual leaching. If new financing is obtained, production capacity could be increased to about 11,500 t/yr.	5	4	3	12	12	12	
Liberty (formerly Hall-Tonapah)	General Moly	Concentrates	Developing	OP	1989, 2016	1991		Mo	Principal product is Mo. Last operated 1991 by Cyprus. Prefeasibility update Nov11. Expected prod 5.8ktpy Cu for 42 years.					2	6	6
Lisbon Valley	Lisbon Valley Mining Co. (formerly Constellation Copper Corp.)	SX-EW	Operating	OP	2006				Started April 06. Mining suspended Nov 07.Filed for bakruptcy protection in 2008. Risidual leach only. New mining began 2010. Former Constelation Copper Corp.	10	10	10	10	10	10	
Malachite	Copper Mesa Mining Corp.	Unknown Mine	Exploration												0	
MAN Alaska	Pure Nickel Inc	Unknown Mine	Exploration					Ni	Widespread high-grade nickel-copper-platinum group elements (Ni-Cu-PGE) showing up to 15.4% Ni, 7.19%Cu, 170g/t PGE+Au+Ag. ITOCHU Corp. withdrew from the joint venture in Nov 2013						0	
Miami	Freeport-McMoRan Copper & Gold Inc.	SX-EW	Operating	OP	1908				Mining ceased 01 and prod continued from residual leach. Planned restart of Miami mine deferred in late 08 due to weak market conditions. 4Q09 initiated plans to restart prod. When reserves depleated will switch to residual leach.	50	50	50	50	40	40	

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Thousand metric tonnes copper

Mine	Operator/Owner(s)	Process	Status	Type (1)	Start Up	Closure/ LOM (2)	Concs. Cu %	Other Metals	Short remarks	2012	2013	2014	2015	2016	2017	Project Cap.
Miami Leach	BHP Copper Co.	SX-EW	Operating	Insitu SX-EW	1963					3	2	2	2	2	2	
Milford (includes OK Mine)	CS Mining	Concentrates	Operating	OP	2009				Multiple deposits in Milford area. Concs, SX-EW, vat leach and dump leach. Conc prod started Jul09. SX-EW production in 2nd phase. Filled for bankruptcy in May 2010. Acquisiition of the mining assets of Western Utah Copper Company and Copper King Mining Corporation in August of 2011. CS Mining intends to improve the efficiency of the flotation mill, construct a new tailings pond and complete additional metallurgical testing within 3-4 months prior to the restart of operations	5	5	5	5	5	5	
Milford (includes OK Mine)	CS Mining	SX-EW	Operating	OP	2009				Multiple deposits in Milford area. Concs, SX-EW, vat leach and dump leach. Conc prod started Jul09. SX-EW production in 2nd phase. Filled for bankruptcy in May 2010. Acquisiition of the mining assets of Western Utah Copper Company and Copper King Mining Corporation in August of 2011. CS Mining intends to improve the efficiency of the flotation mill, construct a new tailings pond and complete additional metallurgical testing within 3-4 months prior to the restart of operations						4	
Mineral Park	intergeo Mining	Concentrates	Operating	OP	2008	2033		Mo	Concs production started Oct 2008. Mercator Minerals Ltd. and Intergeo MMC Ltd (Onexim Group) merged in 2014.	26	26	26	26	26	26	
Mineral Park (SXEW)	Mercator Minerals Ltd	SX-EW	Operating	OP	1994	2033		Ag	Expanded in 2006. Reduced capacity owing to lower mining rate with startup of concentrate prod. Mercator Minerals Ltd. and Intergeo MMC Ltd (Onexim Group) merged in 2014.	5	3	3	3	3	3	
Mission (Eisenhower, Pima, San Xavier)	Asarco (Grupo Mexico)	Concentrates	Operating	OP	1908			Ag, Mo	Concentrator Expansion increasing copper content production by 10ktpy in 4Q13.	80	80	90	90	90	90	
Montanore (Noxon)	Mines Management, Inc. (2002)	Unknown Mine	Exploration	UG				Ag	Supplemental Draft Environmental Impact Statement (the "SDEIS") has been completed by the U.S. Forest Service in Sep11.Silver-Copper deposits containing in-situ mineralization estimated at more than 230M oz Ag and nearly 2 billion pounds of copper. Production capacity of approx 23ktpy Cu. During 2013, the Company has continued to plan for the advanced exploration and delineation drilling program, principally through the pursuit of federal and state agency permitting approvals.						0	23
Morenci	Freeport-McMoRan Inc 85%, 15% affiliates of Sumitomo Corporation	Concentrates	Operating	OP	1937			Mo, Au, Ag, Se	Concentrate production/leach placed on C&M end 2008 and mining rate reduced by 50%. Mar10 restarted Morenci mill that was shut down in Feb09. Expansion of mining and milling capacity to process additional sulfide ores targeting incremental annual production approx 100kt Cu in mid 2014	70	70	100	170	170	170	
Morenci	Freeport-McMoRan Inc 85%, 15% affiliates of Sumitomo Corporation	SX-EW	Operating	OP	1937			Mo, Au, Ag, Se	Concentrate production/leach placed on C&M end 2008 and mining rate reduced by 50%. Mar10 restarted Morenci mill that was shut down in Feb09. Expansion of mining and milling capacity to process additional sulfide ores targeting incremental annual production approx 100kt Cu in mid 2014	350	350	350	350	350	350	
Nokomis	Twin Metals Minnesota ltd (JV Duluth Metals Ltd 60%, Antofagasta Plc 40%)	SX-EW	Feasibility	UG				Ni, Co, PGM, Au	Indicated reserves: 13.7 billion lbs copper, 4.4 billion lbs nickel, and 21.2 million ozs palladium+platinum+gold (TPM). Projected at 82 ktpy Cu. Jan10, Antofagasta acquired 40% in Nokomis funding US$130 million on exploration/feasibility over 3 years. In July 2014 Antofagasta terminated the option to acquire an additional 25%. Pre-Feasibility study expected in 2014. Estimated startup after 2020						0	82

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Table1: WORLD COPPER MINES PRODUCTION CAPACITIES 2012 To 2017

Thousand metric tonnes copper

Mine	Operator/Owner(s)	Process	Status	Type (1)	Start Up	Closure/ LOM (2)	Concs. Cu %	Other Metals	Short remarks	2012	2013	2014	2015	2016	2017	Project Cap.
Northmet Project	Polymet Mining Corp.	Concentrates	Developing	UG	2017			Ni, Au, Co, PMG	Production rate – first 5 years 33ktpy Cu. Magmatic sulfide: autoclave leaching concentrate. Supplemental EIS expected by early 2012: concentrate to be sold during startup prior to completion of hydromet plant. Currently in late stage of environmental review and initial stage of permitting process						20	32
Other minor producers	Various	Concentrates	Operating	UG, OP, Leach				Zn, Pb, Ag, Au	About 6 small producers of by-product Cu.	9	9	9	9	9	9	
Palmer	Constantine Metal Resources	Concentrates	Exploration					Zn, Au, Ag	4.12Mt, 2.01% Cu, 4.79% Zn, 0.30 g/t Au, 30.5 g/t Ag. Located in Alaska. Contains Arsenic. Drilling program started May 2014.						0	
Pebble	Northern Dynasty Minerals	Concentrates	Feasibility	OP	2023		26	Au, Mo	In Alaska. 5.94 billion tonnes in the measured and indicated category containing 55 billion lb Cu, 67 million oz Au and 3.3 billion lb Mo; and 4.84 billion tonnes in the inferred category, containing 26 billion lb Cu, 40 million oz Au and 2.3 billion lb Mo. Quantities of silver, palladium and rhenium also occur in the deposit. Potential economic value to 3 mine development cases of 25, 45 and 78years mine life. OP with potential for UG development post 25 years. Construction would take 4 years. Reference case 45Y yelds annual avg production of 308kt Cu with peak annual Cu recovered of 525kt. Concs @26% Cu. Startup expected for 2021 but Anglo American withrew from the project in Sep 2013. Northern Dinasty expect to initiate federal and state permitting in 2014. In May 2014 filed a lawsuit against the US Environmental Protection Agency seeking an injunction to suspend an EPA review of the project.						0	300
Phoenix (USA)	Newmont Mining Corp.	Concentrates	Operating	OP	2006			Au, Ag	Predominantely a gold mine.	40	40	40	40	40	40	
Phoenix (USA) SX-EW	Newmont Mining Corp.	SX-EW	Operating		2013				Production of around 10ktpy Cu in the first 5 years. Life of mine 25 years. Treats waste ore		1	10	10	10	10	
Pine Tree	IEMR Resources Inc.	Unknown Mine	Exploration					Mo, Ag, Re	The exploration target is a +1 billion tons grading +0.06% molybdenum, +0.25% copper, 100 ppb rhenium per ton, 2 grams of silver per ton and 0.1 grams of gold per ton with indium and gallium. In June, 2010, IEMR Resources acquired mine in June 2014 from American CuMo Mining Corp.						0	
Pinto Valley	Capstone Mining Corp.	Concentrates	Operating	OP	1911	2026	30	Mo, Au, Ag	Restarted mill 4Q 2007. Cessation of sulphide mining in Feb09 (C&M) and restarted 4Q2012. SX-EW continues operating with residual leaching. Sold by BHP Billiton to Capstone Mining Corp. in October 2013. Preliminary Feasibility Study to extend mine life by 8 years to 2026 completed in March 2014.	60	60	60	60	60	60	
Pinto Valley	Capstone Mining Corp.	SX-EW	Operating	OP	1911	2026	30	Mo, Au, Ag	Restarted mill 4Q 2007. Cessation of sulphide mining in Feb09 (C&M) and restarted 4Q2012. SX-EW continues operating with residual leaching. Sold by BHP Billiton to Capstone Mining Corp. in October 2013. Preliminary Feasibility Study to extend mine life by 8 years to 2026 completed in March 2014.	3	2	2	2	2	2	

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Thousand metric tonnes copper

Mine	Operator/Owner(s)	Process	Status	Type (1)	Start Up	Closure/ LOM (2)	Concs. Cu %	Other Metals	Short remarks	2012	2013	2014	2015	2016	2017	Project Cap.
Pumpkin Hollow	Nevada Copper Corp.	Concentrates	Developing	OP	2016			Au, Ag	Proven and Probable Mineral Reserves of 4.29 billion pounds of copper; 952,000 ounces of gold and 27.3 million ounces of silver. First production targeted for 2015 but delayed. Start of ramp up to full ore production now in Q2-2016. Mine life of 18 years; Average annual copper production in concentrates: Years 1 to 5: 124ktpy and LOM: 115ktpy					40	124	124
Ray	Asarco (Grupo Mexico)	Concentrates	Operating	OP	1911			Au, Pb, Ag, Mo		100	100	100	100	100	100	
Ray	Asarco (Grupo Mexico)	SX-EW	Operating	OP	1911			Au, Pb, Ag, Mo		47	47	47	47	47	47	
Resolution	Rio Tinto (55%), BHP Billiton (45%)	Concentrates	Feasibility	UG	2027			Au, Ag	Large deep deposit below old Superior mine. Evaluation work scaled back due to economic crisis (Jan09). High quality resource 1.7 billion tonnes at 1.52% copper with significant molybdenum content. Mine life of more than 40 years. Average production of 500ktpy Cu with peak production over 640 ktpa. Phased development. Construction would take 10 years.						0	500
Robinson (Trip-Veteran Pits)	KGHM	Concentrates	Operating	OP	2004			Au, Mo	Closed in 1999. Restarted Oct04. KGHM aquired Quadra FNX Mining in 2012.	60	60	60	60	60	60	
Rock Creek Project	Revett Minerals Inc.	Concentrates	Feasibility	UG				Ag	Projected Production (20-30 year average) 6M oz of silver and 24kt of copper per year over LOM. Supplemental EIS in process, public comment period mid 2013						0	24
Rosemont	Augusta Resource Corp.	Concentrates	Feasibility	OP	2018			Mo, Ag	Current Copper Resource: 7.5B lbs Measured & Indicated. Production: First 3 years average 116ktpy Cu, LOM average 110ktpy. 22 Year mine life. In 2012, the heap leaching of oxide minerals (SX-EW plant) was eliminated from the project. Construction to take 30 months.						0	116
Safford	Freeport-McMoRan Copper & Gold Inc.	SX-EW	Operating	Operating	2008				Started early 2008. 50% reduction in mining due to weak market conditions (Jan 09). 2010 production levels back to normal.	110	110	110	110	110	110	
Sierrita	Freeport-McMoRan Copper & Gold Inc.	Concentrates	Operating	OP	1970			Mo, Ag	Expansion deferred in Jan 09 due to weak market conditions.	80	80	80	80	80	80	
Sierrita	Freeport-McMoRan Copper & Gold Inc.	SX-EW	Operating	OP	1970			Mo, Ag	Expansion deferred in Jan 09 due to weak market conditions.	2	2	2	2	2	2	
Silver Bell	Grupo Mexico	SX-EW	Operating	OP	1954, 1997				Arsaco (Grupo Mexico)	22	22	22	22	22	22	
Tohono (Casa Grande)	Freeport-McMoRan Copper & Gold Inc.	SX-EW	Operating	Insitu SX-EW	1984				Restarted 1st April 2005. Put on C&M in 2009.	3	3	3				
Troy	Revett Silver Co.	Concentrates	Operating	UG	1981			Ag, Au	Restarted December 2004. In Dec 2012 due to concerns with underground geotechnical conditions it has temporarily suspended underground mining operations.To return to limited production in 4Q2014 and full production by mid.2015	5	5	5	5	5	5	
Tyrone Leach SX-EW	Burro Chief Copper Co. (Freeport-McMoRan Copper & Gold Inc.)	SX-EW	Operating	Leach	1984				Operating at reduced mining rate to extend limited reserves. 50% reduction in mining due to weak market conditions (Jan 09)	50	50	50	50	50	50	
Van Dyke	Copper Fox Metals Inc.	SX-EW	Exploration	Insitu SX-EW					On 2012, Bell Copper sold project to Copper Fox Metals Inc.						0	
Whistler	Kiska Metals Corp.	Unknown Mine	Exploration						In Alaska. Inferred resource: 145.8 million tonnes grading 0.40 g/t gold, 1.75 g/t silver and 0.15% copper (3.35 Moz Gold Equivalent) Assessing options for the project.						0	

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Table1: WORLD COPPER MINES PRODUCTION CAPACITIES 2012 To 2017

Thousand metric tonnes copper

Mine	Operator/Owner(s)	Process	Status	Type (1)	Start Up	Closure/ LOM (2)	Concs. Cu %	Other Metals	Short remarks	2012	2013	2014	2015	2016	2017	Project Cap.
White Pine	Highland Copper Company	Concentrates	Feasibility	UG	1954	1995		Ag	Acquired White Pine copper project from Copper Range Company in 2014. The former White Pine mine operated from 1952 to 1995. Mining ceased due largely to depressed copper prices, although significant amounts of mineralization remained, particularly to the north of the former mine. Highland's exploration efforts are focused on that area, with the objective of completing a National Instrument 43-101 compliant resource estimate in 2014.						0	
Zonia	Redstone Resources Corp	SX-EW	Feasibility		2016				Brownfield project. Final feasibility end 2010 for 16ktpy SX-EW. Formerly Copper Mesa Mining Corp					5	16	16
Uzbekistan			**Operating+Developing**							**120**	**120**	**120**	**120**	**120**	**120**	
Uzbekistan			**Exploration+Feasibility**												**0**	**6**
Uzbekistan			**Total Status**							**120**	**120**	**120**	**120**	**120**	**120**	**6**
Almalyk (Kalmakyr, Sary-Cheku)	Almalyk Mining and Metallurgical Combine	Concentrates	Operating	OP	1953		16	Mo	Produces Selenium, Telerium and Rhenium as by products. Company undergoing a Program for modernization, technical and technological re-equipment of in 2013-2015 aiming at making up for the depleted capacities on production of non-ferrous and precious metals with the expansion of the Complex's raw material base. Plans to develop the Dalnee mine to compensate for lower prod at exiting mines.	120	120	120	120	120	120	
Khandiza	Marakand Minerals (Oxus Gold Plc)	Concentrates	Feasibility	UG				Zn, Pb, Ag	The Khandiza Deposit contains an audited resource above a 2% zinc cutoff of 13.0 Mt at an average grade of 8.3% zinc, 4.1% lead, 1.0% copper, 144 g/t silver and 0.34 g/t gold. Potential of 6ktpyCu in concs. Currently in dispute with the Uzbekistan government over the the expropriation of the Company's Khandiza and AGF investments.						0	6
Venezuela			**Exploration+Feasibility**												**0**	**29**
Venezuela			**Total Status**												**0**	**29**
Brisas	Gold Reserve Inc.	Concentrates	Feasibility	OP				Au	Based on Feasibility study: proven and probable reserves of approximately 9.2 million oz Au of gold and 1.2 billion Lb Cu, mine life 16Y, production 124Mtpy copper concs (29kt Cu). In April 2008, when the project was at the point of construction, Venezuela arbitrarily revoked the previous authorization to proceed with construction eliminating the Company's ability to exploit the project. Since then, the Company is pursuing its arbitration claim against Venezuela						0	29
Las Cristinas	Crystallex International Corporation	Concentrates	Feasibility	OP				Au	Mainly a gold mine. The Government of Venezuela expropriated Crystallex's investments in Las Cristinas in 2011. As a result, Crystallex filed a Request for Arbitration under the Additional Facility Rules of the International Centre for Settlement of Investment Disputes. However, in Sep 2012, Venezuela signed an agreement with chinese company Citic Group that included the exploration of Las Cristinas.						0	

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Thousand metric tonnes copper

Mine	Operator/Owner(s)	Process	Status	Type (1)	Start Up	Closure/ LOM (2)	Concs. Cu %	Other Metals	Short remarks	2012	2013	2014	2015	2016	2017	Project Cap.
Vietnam			**Operating+Developing**							**11**	**13**	**17**	**17**	**17**	**17**	
Vietnam			**Exploration+Feasibility**													
Vietnam			**Total Status**							**11**	**13**	**17**	**17**	**17**	**17**	
Nui Phao	Masan Resources 70%, Thai Nguyen Mineral Comp. 30%	Concentrates	Operating	OP	2013	2026		W, Au, Bi, F	Located in the Dai Tu District of the Thai Nguyen Province. Polymetallic mine with significant deposits of tungsten, fluorspar, bismuth, copper and gold. Mine life 16.5 years. Nui Phao will be a globally significant producer of tungsten, fluorspar and bismuth. Produces tungsten and copper concentrate. Average LOM copper production: 6ktpy Cu. Started production in 2Q2013		2	6	6	6	6	
Sin Quyen	Vietnam National Coal and Mineral Industries Group (Vinacomin)	Concentrates	Operating		2006		18	Au, Ag	Operating as Au/Ag mine previously. Copper mine started April 06. Refinery started Jun 08.	11	11	11	11	11	11	
Zambia			**Operating+Developing**							**1,214**	**1,351**	**1,414**	**1,646**	**1,828**	**2,031**	**445**
Zambia			**Exploration+Feasibility**												**0**	**46**
Zambia			**Total Status**							**1,214**	**1,351**	**1,414**	**1,646**	**1,828**	**2,031**	**491**
Baluba	Luanshya Copper Mines (80% China Nonferrous Metals Mining Co, 20% ZCCM Investment Holdings)	Concentrates	Operating	UG	1973			Co, Au, Ag	Operations resumed in Jun04. Upgrade of mine shaft in 2008. Put on C&M in Dec 08 due to weak market conditions. Bought by CNFM in Apr09. Baluba Centre restarted prod 2010 after modernization of processing plant, mine life 13Y, Baluba East to start 2017, mine life 7Y.	20	20	20	20	20	20	
Chambishi (SML)	Sino-Metals Leach Zambia Ltd	Concentrates	Operating	UG	2004				Chambishi Leach Plant, 2004, cap 7ktpy cathode: Mineral resource sources from stripped waste rock, oxidized ore, taillings of heap leaching and flotation taillings from the Chambishi mining area. Chambishi Processing Plant, May 2011, cap 2.5ktpy Cu in concs: Treats oxidized ore from Chambishi West Mine, waste rock and expected to treat oxidized ore from Mwambashi.	3	3	3	3	3	3	
Chambishi (SML)	Sino-Metals Leach Zambia Ltd	SX-EW	Operating	UG	2004				Chambishi Leach Plant, 2004, cap 7ktpy cathode: Mineral resource sources from stripped waste rock, oxidized ore, taillings of heap leaching and flotation taillings from the Chambishi mining area. Chambishi Processing Plant, May 2011, cap 2.5ktpy Cu in concs: Treats oxidized ore from Chambishi West Mine, waste rock and expected to treat oxidized ore from Mwambashi.	8	8	8	8	8	8	
Chambishi	NFC Africa (China Nonferrous Metals Mining Co. 85%, ZCCM 15%)	Concentrates	Operating	UG	1965, 2003		40		Ore from Chambishi Main mine (2003, life 13Y, cap 25ktpy Cu in concs @ 40% Cu) & West mine (2010, life 25Y). Southeast mine starting 2016, life 20Y, adding 62ktpy Cu in concs @24% Cu but Zambia Environmental Management Agency (ZEMA) halted construction and closed the mine on 4Dec13 for alleged violation of licence terms issued in September 2012. Company in discussions with government.	26	30	33	36	65	95	
Cheowa Project	Zambezi Resources Ltd 49%, Glencore plc 51%	Unknown Mine	Exploration					Au	Joint venture. Cheowa has three prospects, Cheowa (6 Mt @ 1% Cu), Chayinda (3.3 Mt @ 2.1% Cu) and Chalimbana (5.3 Mt @ 0.8% Cu). Glencore is planning drilling programs and budgets to further the project development.						0	
Chibuluma South	Metorex (Jinchuan Group) 85%, ZCCM 15%	Concentrates	Operating	OP	2001			Co	On C&M from Sep01 to Oct 04. Exp in 07/08. Extension drilling has commenced at both the Chibuluma South and Chifupu deposits. Exploration programme to increase mine life is continued.	19	19	19	19	19	19	

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Thousand metric tonnes copper

Mine	Operator/Owner(s)	Process	Status	Type (1)	Start Up	Closure/ LOM (2)	Concs. Cu %	Other Metals	Short remarks	2012	2013	2014	2015	2016	2017	Project Cap.
Chingola Refractory Ore (CRO)	Konkola Copper Mines (Vedanta 51%, Zambia Copper Investments Ltd. (ZCI) 28.4%, ZCCM 20.6%)	SX-EW	Developing		2016				CRO has been stockpiled at Nchanga since 1955 containing 150MTore @ 8%Cu. Project under review. Capacity 50ktpy Cu.					25	50	50
Fitwaola	Konkola Copper Mines (Vedanta 51%, Zambia Copper Investments Ltd. (ZCI) 28.4%, ZCCM 20.6%)	SX-EW	Closed	OP	2005	2008			Started August 05, to provide oxide ore to NchangaTLP. Closed 2008. Mining operations recommenced in April 2010. Included in NchangaTLP.							
Ichimpe	Zhonghui Mining Group	SX-EW	Developing		2014			Co	Expected startup in 2014 at a capacity of 35ktpy Cu cathode			2	25	35	35	35
Kangaluwi-Chisawa Project	Zambezi Resources, Ltd	SX-EW	Developing		2016				The Kangaluwi, Chisawa and Kalulu are three prospects within the Kangaluwi Copper Project. 46 Mt @ 0.67% Cu for 300 kt contained copper from the Kangaluwi, Chisawa and Kalulu deposits. Bankable Feasibility Study in 2012. 35ktpy cathode, mine life 5Y. Startup expected for 2014 but delayed as Environmental Impact Study was rejected. Company appealed to overturn the rejection.					2	35	35
Kakoso	Sino-Metals Leach Zambia Ltd 88%, Shenzen Resources Ltd 12%	SX-EW	Developing		2014				Taillings deposit @0.6% Cu. Cap 3ktpy. Mine life 12years. Starts 2014.			1	3	3	3	3
Kansanshi	First Quantum Minerals Ltd (80%), ZCCM (20%)	Concentrates	Operating	OP	2004	2030	25	Au	Multi Phases Expansion: Phase1 in 2012, from 250 to 285ktpy Cu, expanding oxide circuit capacity and building in flexibility to allow for the mixed and sulphide circuits to be switched as needed to suit mining activity. Using relocated equipment from Bwana Mkubwa closed SX/EW plant and new installations. Further expansion of oxide circuit to 14.5Mtpa completed Nov 2013. Full utilization of this SXEW processing capacity once the new copper smelter is in operation providing sulphuric acid. Due to the high cost of exporting concs the completion of the sulphide expansion has been defered until 2017 when the smelter capacity is also expanded . At conclusion total mine capacity of 400ktpy Cu.	175	175	175	175	175	290	
Kansanshi	First Quantum Minerals Ltd (80%), ZCCM (20%)	SX-EW	Operating	OP	2004	2030	25	Au	Multi Phases Expansion: Phase1 in 2012, from 250 to 285ktpy Cu, expanding oxide circuit capacity and building in flexibility to allow for the mixed and sulphide circuits to be switched as needed to suit mining activity. Using relocated equipment from Bwana Mkubwa closed SX/EW plant and new installations. Further expansion of oxide circuit to 14.5Mtpa completed Nov 2013. Full utilization of this SXEW processing capacity once the new copper smelter is in operation providing sulphuric acid. Due to the high cost of exporting concs the completion of the sulphide expansion has been defered until 2017 when the smelter capacity is also expanded . At conclusion total mine capacity of 400ktpy Cu.	110	110	110	110	110	110	
Kashime	First Quantum Minerals Ltd	Unknown Mine	Feasibility						Fishtie copper project. Located near the town of Mkushi. Development options being evaluated						0	
Kitumba	Blackthorn Resources	Concentrates	Feasibility	UG					UG mine with 11 years mine life. 33 million tonnes of mineable ore with 572Mt contained copper. Combination of flotation and solvent extraction and electrowinning (SXEW) plant to produce average of approx 39ktpy (36ktpy in first 4 years ramping up to 40ktpy in years 5 to 11). Final investment decision to be taken in 3Q2015.						0	40

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Konkola	Konkola Copper Mines (Vedanta 79.4%, ZCCM 20.6%)	Concentrates	Operating	UG	1957			Ag, Se	Konkola Deep Mining project: enhanced mining up to 1500 m depth and life extension to 30 years. Botton Shaft waste hoisting commissioned in 2012.	130	170	200	250	250	200	
Lubambe	TEAL (50% African Rainbow, 50% Vale) 80%, ZCCM 20%	Concentrates	Operating	OP	2012				Project approved Aug10. Started Oct 2012, reaching max capacity in 2015. Capacity of 45ktpy Cu in concentrates. Mine life 28Y. Possibility to expand to 100ktpy in 2020 with the South e East Limb mines. A feasibility study into the viability of the extension is forecast to be completed by the first half of 2014.	4	25	35	45	45	45	
Lumwana	Barrick Gold Corp.	Concentrates	Operating	OP	2008			Au, Co, U	Mine life 37 years. Prefeasibility study on the expansion opportunity, which has the potential to double processing, expected in second half of 2013.. Barrick Gold acquired Equinox Minerals in June 2011	160	160	160	160	160	160	
Mashiba	Luanshya Copper Mines (80% China Nonferrous Metals Mining Co, 20% ZCCM Investment Holdings)	SX-EW	Feasibility						Included in Muliashi						0	6
Mkushi	Elephant Copper Ltd 51%, African Eagle Resources 49%	Concentrates	Developing		2015				Brownfield's copper mine, operated from 1920's to 1970's. Phase 1 - Dewater pit / mine / crush / heap leach pre-concentration. Phase 2 – Sulphide concentrator construction, continued phase 1 processing Underground (UG) development / starter pit development. Phase 3 - UG mining / concentrate from the UG & open pit ore / heap leach. 30% Cu concs. Cap 20ktpy Cu				4	20	20	20
Mokambo	Nubian Resources (80%)	Concentrates	Feasibility						Abandoned the project in 2009						0	
Mufulira	Mopani Copper Mines plc. (First Quantum Minerals Ltd 16.9%, Glencore plc 73.1%, Zambia Consolidated Copper Mines Ltd. - ZCCM 10%)	Concentrates	Operating	UG	1933			Ag	Synclinorium project scheduled to complete Q4 2015, ramping up to full production in 2018. 78ktpa Cu in Ore Hoisted at full production	120	120	120	120	120	120	
Mufulira & Nkana SX-EW	Mopani Copper Mines plc. (First Quantum Minerals Ltd 16.9%, Glencore plc 73.1%, Zambia Consolidated Copper Mines Ltd. - ZCCM 10%)	SX-EW	Operating	UG	2000				Includes 2 plants at Mufulira and 2 plants at Nkana. Expansion to 100ktpy by end 2008.	100	100	100	100	100	100	
Muliashi	Luanshya Copper Mines (80% China Nonferrous Metals Mining Co, 20% ZCCM Investment Holdings)	SX-EW	Operating	OP	2012				Cap 40ktpy Cu. Start-up planned for end 2009 but delayed to Dec 2011. Prod started Mar2012. Mine life 13Y. CNFM bought 80% in Luanshya Mines in May09.	18	35	40	40	40	40	

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Thousand metric tonnes copper

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Mwambashi	Sino-Metal Leach Zambia Ltd (China Nonferrous Metals Mining Corp. 55%)	Concentrates	Developing	UG	2014				Transferred from Edgeway Business Solutions Ltd to SML in Jan 2011. Sulphide ore treated at Sino-Metal Chambishi processing plant to produce concentrates at 2ktpy Cu and oxide ore to be treated at Sini-Metal Chambishi leach plant. Underground mine expected to start in 2014.			2	2	2	2	2
Nama	Caledonia Mining Corp.	Unknown Mine	Exploration					Co	Adjacent to Konkola and Vale/ARM properties. Drilling commenced in March 2011. Final environmental approval has not yet been received.						0	
Nampundwe	Konkola Copper Mines (Vedanta 51%, Zambia Copper Investments Ltd. (ZCI) 28.4%, ZCCM 20.6%)	Concentrates	Operating	UG	1930			Pyrite	Pyrite mine	1	1	1	1	1	1	
Nchanga	Konkola Copper Mines (Vedanta 51%, Zambia Copper Investments Ltd. (ZCI) 28.4%, ZCCM 20.6%)	Concentrates	Operating	OP, UG	1936			Co, Ag, Se	Open pit and underground. The Nchanga East Concentrator was commissioned in Jan 2012 and the Nchanga West Concentrator in 2Q2012. Review is underway to extend mine life of the lower ore body (LOB) by 2 years to 5 years, while the upper ore body (UOB) project (to sustain current production levels and extend life by 22 years) is under technical review.	70	70	70	70	70	70	
Nchanga TLP	Konkola Copper Mines (Vedanta 51%, Zambia Copper Investments Ltd. (ZCI) 28.4%, ZCCM 20.6%)	SX-EW	Operating	Tailings Leach	1975				Oct09 opened one of the Tailings dumps for processing through TLP operation. Expansion comissioned in 2012.	100	130	130	130	130	130	
Ndola	Macrolink Group	Unknown Mine	Exploration						Mwekera Copper Project. Midway between Frontier Mine and Lonshi Mine. Deposit of 40Mt @ 0.8% copper drilled in 1960s						0	
Nkana Slag Dumps/ Chambishi Cobalt Plant	Eurasian Natural Resources Corporation PLC (ENRC) 90%, ZCCM Investments Holdings PLC 10%	SX-EW	Operating		2001			Co	Roast leach EW plant, electric arc furnace, pressure leach plant, slag dump 16.6MT avg 1.10% Cu. Put on C&M in Jan09 due to market conditions and sale of Luanshya mine that was providing feed. Re-started Nov09. Bought by ENRC in 2010. Exp in 2012 to 55kt	30	55	55	55	55	55	
Nkana South & Central Orebodies	Mopani Copper Mines plc. (First Quantum Minerals Ltd 16.9%, Glencore plc 73.1%, Zambia Consolidated Copper Mines Ltd. - ZCCM 10%)	Concentrates	Operating	UG	1931			Co, Au, Ag	New shaft at Nkana (“Synclinorium Project”) in order to mine an untapped ore resource containing approximately 115 million MT of copper ore. This project is expected to increase ore production at Nkana by 4.0 million MT per annum by 2018	120	120	120	120	120	120	
Sentinel	First Quantum Minerals Ltd	Concentrates	Developing		2014				M&I resource of 1,027 Mt at 0.51% Cu grade, containing 5.2 Mt Cu. Sentinel forms part of Trident project which also houses Entreprise (Ni) and Intrepid, a yet-to-be-developed copper deposit. Sentinel starts 4Q2014 to produce iniially 150ktpy Cu in concs rising up to 300ktpy. Entreprise starts 1Q2015 producing around 38 to 60 Ktpa nickel in concentrate. Mine life is in excess of 15 years.			10	150	250	300	300

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Table1: WORLD COPPER MINES PRODUCTION CAPACITIES 2012 To 2017

Thousand metric tonnes copper

Mine	Operator/Owner(s)	Process	Status	Type (1)	Start Up	Closure/ LOM (2)	Concs. Cu %	Other Metals	Short remarks	2012	2013	2014	2015	2016	2017	Project Cap.
Zimbabwe			**Operating+Developing**							**7**	**7**	**7**	**8**	**8**	**8**	
Bindura	Bindura Nickel Corp. Ltd. (Mwana Africa Holdings,75.4%)	Concentrates	Operating	OP	1995			Ni, Co	Copper is by product of Nickel. The Shangani and Trojan mines were placed on care and maintenance in November 2008. Trojan reopened in February 2013.	2	2	2	2	2	2	
Mimosa	Aquarius Platinum 50%, Implats 50%	Concentrates	Operating	UG				PGM	Cu by-product	2	2	2	2	2	2	
Ngezi	Zimplats	Concentrates	Operating	UG					The Ngezi Phase II concentrator was successfully commissioned in 2Q13 and has achieved design capacity. Development of the new underground mine (Mupfuti) remains on schedule to reach full production in early 2015	3	3	3	4	4	4	
World			**Operating**							**20,049**	**20,982**	**21,898**	**22,604**	**23,374**	**23,871**	
World			**Developing**									**122**	**773**	**1,866**	**2,476**	**3,206**
World			**Feasibility**										**22**	**341**	**1,127**	**10,896**
World			**Exploration**										**0**	**0**	**0**	**463**
World			**Closed**							**118**	**68**	**1**				
World			**Total Status**							**20,167**	**21,050**	**22,021**	**23,399**	**25,581**	**27,474**	**14,565**

(1) OP : Open Pit, UG : Underground

(2) Date of closure/Life of Mine based on current operating plans/reserves

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Table 2: WORLD COPPER SMELTERS PRODUCTION CAPACITY 2012 To 2017

Thousand metric tonnes copper

Smelters	Operator/Owner(s)	Process	Status	Start Up	Date of Closure	Raw Materials	Short Remarks	2012	2013	2014	2015	2016	2017	Project Cap.
Armenia			**Operating+Developing**					**12**	**12**	**12**	**12**	**12**	**12**	
Armenia			**Total Status**					**12**	**12**	**12**	**12**	**12**	**12**	
Alaverdi Smelter	Armenian Copper Program CJSC	Electric/ Reverberatory	Operating			Concs.	Current effective production at about 8ktpy	12	12	12	12	12	12	
Australia			**Operating+developing**					**550**	**550**	**550**	**550**	**500**	**250**	
Australia			**Closed (C&M)**					**140**	**140**	**140**	**140**	**140**	**140**	
Australia			**Total Status**					**690**	**690**	**690**	**690**	**640**	**390**	
Mount Isa (smelter)	Glencore plc	Isasmelt Process	Operating	1979	2016	Concs.	Announced plans to sustain the future of Mount Isa operations through expanded mining and concentrate production, while phasing out copper smelting at Mount Isa and refining operations in Townsville by the end of 2016	300	300	300	300	250	0	
Olympic Dam (smelter)	Western Mining (BHP Billiton 76.25%)	Outokumpu Continuous	Operating	1999		Concs.	Seeking Gov approval for expansion to 750kt. Expansion to be developped over a period of 11years.	250	250	250	250	250	250	
Port Kembla (smelter)	Furukawa (71.44%), Nittetsu Mining (20%), Nissho Iwai (5.45%), Itochu (3.11%)	Noranda Continuous	Closed	2000	2003	Concs., Scrap	On care & maintenance since September 2003.	140	140	140	140	140	140	
Austria			**Operating+developing**					**110**	**110**	**110**	**110**	**110**	**110**	
Austria			**Total Status**					**110**	**110**	**110**	**110**	**110**	**110**	
Brixlegg (smelter)	Montanwerke Brixlegg	Blast Furnace (S)	Operating			Scrap, Blister	Expansion to 110ktpy in 2007.	110	110	110	110	110	110	
Belgium			**Operating+developing**					**161**	**161**	**161**	**161**	**161**	**161**	
Belgium			**Total Status**					**161**	**161**	**161**	**161**	**161**	**161**	
Beerse	La Metallo Chimique S.A.	TBRC (S)	Operating			Scrap		130	130	130	130	130	130	
Hoboken (smelter)	Umicore	Isamelt (S)	Operating	1997		Recyclables/by-products	Stopped producing anodes in 03, now produces bullion.	31	31	31	31	31	31	
Botswana			**Operating+developing**					**30**	**30**	**30**	**30**	**30**	**30**	
Botswana			**Total Status**					**30**	**30**	**30**	**30**	**30**	**30**	
Selebi-Phikwe	BCL Limited	Outokumpu Flash	Operating	1973		Ni/Cu/Co Concs.	Capacity is Cu cont. of Cu/Ni matte.	30	30	30	30	30	30	
Brazil			**Operating+developing**					**260**	**280**	**280**	**280**	**280**	**280**	
Brazil			**Total Status**					**260**	**280**	**280**	**280**	**280**	**280**	
Camacari	Caraíba Metais S.A. (Paranapanema S.A.)	Outokumpu Flash	Operating	1982		Concs.	Expansion to 280kt delayed to 1H 2012. Further expansion to 320kt may be considered.	260	280	280	280	280	280	

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Table 2: WORLD COPPER SMELTERS PRODUCTION CAPACITY 2012 To 2017

Smelters	Operator/Owner(s)	Process	Status	Start Up	Date of Closure	Raw Materials	Short Remarks	2012	2013	2014	2015	2016	2017	Project Cap.
Bulgaria			**Operating+developing**					**330**	**330**	**330**	**330**	**330**	**330**	
Bulgaria			**Planned**										**0**	**100**
Bulgaria			**Total Status**					**330**	**330**	**330**	**330**	**330**	**330**	**100**
Chelopech (smelter)	Dundee Precious Metals	Unkown Smelters	Planned			Concs.	Cap 100ktpy. To be built at the mine site. Jan10 frozen plans due to delayed construction permits. In March 2010 bought Tsumeb smelter in Namibia that treats Chelopech concentrates.						0	100
Pirdop (smelter)	Aurubis (99.77%)	Outokumpu Flash	Operating	1987		Concs.		330	330	330	330	330	330	
Canada			**Operating+developing**					**360**	**360**	**360**	**360**	**360**	**360**	
Canada			**Closed**											
Canada			**Total Status**					**360**	**360**	**360**	**360**	**360**	**360**	
Flin Flon (smelter)	Hudbay Minerals Inc	Reverberatory	Closed	1930	2010	Concs.	The copper smelter ceased operations with the last cast of anodes on June 11, 2010. Capacity was 90ktpy.							
Horne Smelter (Quebec)	Glencore plc	Noranda Continuous	Operating			Concs., Scrap		205	205	205	205	205	205	
Kidd Creek (smelter)	Glencore plc	Mitsubishi Continuous	Closed		2010	Concs. and Scrap	Ceased operation in May 2010 as part of a plan to restructure its Canadian metallurgical operations. The Kidd mine and concentrator will remain in operation. Capacity was 150ktpy.							
Sudbury (Xstrata plc)	Glencore plc	Electric	Operating	1930		Ni/Cu Concs.	Smelts Cu/Ni concs from Sudbury and Reglan mines. Matte exported to Norway refinery.	20	20	20	20	20	20	
Sudbury smelter (Copper Cliff)	Vale Inco Ltd.	Inco Flash	Operating	1930		Cu/Ni Concs.	Cu content of Cu/Ni concentrates.	135	135	135	135	135	135	
Chile			**Operating+developing**					**1,798**	**1,798**	**1,798**	**1,798**	**1,834**	**1,834**	
Chile			**Total Status**					**1,798**	**1,798**	**1,798**	**1,798**	**1,834**	**1,834**	
Altonorte (La Negra)	Glencore plc	Noranda Continuous	Operating	1993		Concs.		350	350	350	350	350	350	
Chagres (Disputada)	Anglo American (100%)	Outokumpu Flash	Operating	1995		Concs.		184	184	184	184	220	220	
Codelco Norte (smelter)	Codelco	Outokumpu/ Teniente Converter	Operating	1988		Concs., precipitates		450	450	450	450	450	450	
El Teniente (Caletones)	Codelco Chile	Reverberatory/ Teniente Conv.	Operating	1991		Concs.		400	400	400	400	400	400	
Hernan Videla Lira (Paipote)	Empresa National de Mineria (ENAMI)	Reverberatory/ Teniente Conv.	Operating			Concs.		94	94	94	94	94	94	
Las Ventanas (smelter)	Codelco	Teniente Converter	Operating	1995		Concs.	In Jun 2012 announced an investment plan of US$170 million to upgrade the pan with the aim of reducing emissions by 33% until 2015. In Dec13, Chile's environmental court has rejected a request by public environment authority, SMA, for the temporary shutdown of Codelco's Ventanas division.	130	130	130	130	130	130	

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Table 2: WORLD COPPER SMELTERS PRODUCTION CAPACITY 2012 To 2017

Smelters	Operator/Owner(s)	Process	Status	Start Up	Date of Closure	Raw Materials	Short Remarks	2012	2013	2014	2015	2016	2017	Project Cap.
Salvador (Potrerillos)	Codelco	Teniente Converter	Operating			Concs.	Reverberatory replaced by Teniente converter.	190	190	190	190	190	190	
China			**Operating+developing**					**4,432**	**5,106**	**6,105**	**6,605**	**6,705**	**6,705**	
China			**Closed**					**80**	**10**					
China			**Total Status**					**4,512**	**5,116**	**6,105**	**6,605**	**6,705**	**6,705**	
Baiyin (smelter)	Baiyin Non-Ferrous Metals	Flash Smelter	Operating	1959		Concs.	Two Baiyin Furnaces. New 200kt flash smelter under construction	140	140	340	340	340	340	
Changzhou Smelter	Local Government	Blast Furnace, Rev.	Operating			Concs., Scrap		35	35	35	35	35	35	
Chizhou	Local Government	Blast Furnace	Operating			Scrap		45	45	45	45	45	45	
Dadong	Dongchun Bureau of Mines	Blast Furnace	Operating	1997		Concs.		40	40	40	40	40	40	
Datong (smelter)	Tianjin Copper Plant	Electric	Operating			Scrap		70	70	70	70	70	70	
Daye/ Hubei	Daye Non-Ferrous Metals Co.	Ausmelt	Operating	1997		Concs.	New Ausmelt furnace commissioned in 2010. Reverbatory closed.	300	300	300	300	300	300	
Dongfang	Huludao Non-ferrous Metal Co (Dongfang Copper Corp.)	Blast Furnace	Closed			Concs.	Blast Furnace closed 2009. New Ausmelt in 2010, cap 100ktoy.							
Dongfang (new)	Huludao Non-ferrous Metal Co (Dongfang Copper Corp.)	Ausmelt	Operating	2010		Concs.	Blast Furnace closed 2009. New Ausmelt in 2010, cap 100ktoy.	100	100	100	100	100	100	
Feishang	Feishang Group	Blast Furnace	Operating	2006		Concs.	Switched to Chinese bath smelting process.	100	100	100	100	100	100	
Fuchunjiang	Private company	Blast Furnace	Closed			Concs.	Blast Furnace shutdown in April 2013	50	10					
Heding Copper	Jiangxi Copper, Fuchunjiang (joint venture)	Flash Smelter	Operating	2013		Concs.	Side Blown. Comissioned in June 2013		50	100	100	100	100	
Fuxin (Shenyang)	Jiayi Copper Co.	Blast Furnace	Closed	1995	2012	Concs.	Reopened in December 2004. Closed 2012.	30						
Guixi (smelter)	Jiangxi Copper Corp.	Outokumpu Flash	Operating	1985		Concs., Scrap	New smelting line and new electrolytic refinery in 2007. Expansion in 2008.	900	900	900	900	900	900	
Houtoushan	Houtoushan Copper Mine	Blast Furnace	Operating			Concs.	New bottom blown furnace was comissioned in October 2012.	50	50	50	50	50	50	
Huili Kumpeng	Liangshan Mining Industry	Isasmelt Process	operating	2010		concs.	Started 2010. JV Yunnan Copper and Lala copper mine. No refinery.	100	100	100	100	100	100	
Jinchang (Tongling II)	Tongling Nonferrous Metals Corp. (52%), Sharpline International (13%)	Reverberatory/ Ausmelt	Operating			Concs.	Will change to scrap once the new flash smelter starts production in 2013	200	200	200	200	200	200	
Jinchuan (smelter)	Jinchuan Non- Ferrous Metal Co.	Reverberatory/ Kaldo Conv.	Operating			Concs.		400	400	400	400	400	400	
Jinchuan (Fangchenggang smelter)	Jinchuan Non-Ferrous Metal Co.	Flash smelter	Operating	2013		Concs.	Double Flash. 400ktpy capacity. Guangxi Province. Started Nov 2013. In Feb 2014 Trafigura announced interest to buy 30% of Jinchuan Group's copper smelter.		1	200	400	400	400	
Jinfeng	Jinfeng Copper Co.	Flash Smelter	Operating			Concs.	Switched to Chinese bath smelting process to comply with regulations in May 08.	100	100	100	100	100	100	
Jinguan (smelter)	Tongling Non-Ferrous Metals Group	Flash Smelter	Operating	2013		Concs.	Double Flash.		400	400	400	400	400	
Jinjian (smelter)	Tongling Non-Ferrous Metals Group	Ausmelt	Operating			Concs.		100	100	100	100	100	100	
Jinlong (Tongdu)	Tongling Nonferrous Metals Corp. (57.4%), Sumitomo (35%), Pingguo Aluminium Co.	Flash Smelter	Operating	1997		Concs.		350	350	350	350	350	350	
Kangxi (Liangshan)	Local Government, Jiangxi Copper 40%	Blast Furnace	Operating			Concs.	Expansion in two stages: stage 1 to 50kt in 2011 and stage 2 to 100kt in 2015.	50	50	50	100	100	100	
Kunming (smelter)	Kunming Liliang Co.	Blast Furnace	Operating	1960		Concs., Scrap	Treats ores high in Arsenic. Might close.	20	20	20	20	20	20	

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Table 2: WORLD COPPER SMELTERS PRODUCTION CAPACITY 2012 To 2017

Smelters	Operator/Owner(s)	Process	Status	Start Up	Date of Closure	Raw Materials	Short Remarks	2012	2013	2014	2015	2016	2017	Project Cap.
Lihua (smelter)	Lihua International Inc.	Unkown Smelters	Operating	2010		Scrap	Company own smelting technology undisclosed. One furnace in 2010, 35kt, two new furnaces in 2012, +50kt and plans for a 4th furnace in 2013. Company integrates copper smelting, refining and semis products. Treats only scrap.	50	85	85	85	85	85	
Rongda	Guangxi Debao Copper, Tongling Nonferrous Metals	Blast Furnace	Operating	2004		Concs.		20	20	20	20	20	20	
Shandong Fangyuan (smelter)	Dongying, Shabdong	Outokumpu Flash	Operating			Concs.	Chinese SKS furnace. A new SKS furnace is under construction.	100	100	300	300	300	300	
Shuikoushan (smelter)	Shuikoushan Mining Bureau	Reverberatory	Operating	1978		Concs.	New SKS techology to be installed.	12				100	100	
Tongling (new smelter)	Tongling Non-Ferrous Metals Group	Outokumpu Flash	Operating	2014		Concs.	Capacity 400ktpy. Started early 2014			350	400	400	400	
xiangguang copper (smelter)	Yanggu Xiangguang Copper Co	Outokumpu Flash	Operating	2007			Norddeutsche Affinerie pulled out in 2006. Phase 2 construction to increase to 400ktpy started Jun09 and comissioned in June 2011.	400	400	400	400	400	400	
Xichang	Local Government	Blast Furnace	Closed	1995		Concs.	closed 2011							
Yantai Penghui	Yantai Non-Ferrous Metals Co.,Ltd 49.8%, Minmetals 42%, China Non-Ferrous New Metal Co.,Ltd 8.2%	Blast Furnace	Operating	1975		Concs.	Own bath smelting with oxygen-enriched air side-blasted process. A feasibility study for a 300ktpy double flash smelter is under government review.	100	100	100	300	300	300	
Yunan Tin	Yunan Tin	Ausmelt	Operating	2000		concs.	Kaldo furnace stopped. New furnace 100ktpy	100	100	100	100	100	100	
Yunnan	Yunnan Copper Industry Group (Local Government)	Isasmelt Process	Operating			Concs.	In 2007 Chinalco acquired 49% of Yunnan Copper Co	350	350	350	350	350	350	
Zijin (smelter)	Zijin Mining Company 50%, Minxi Xinghang 50%	Outokumpu Flash	Operating	2012		Concs.	Started Nov 2011. Capacity 200ktpy Cu	150	200	200	200	200	200	
Zhongtiaoshan (Houma)	Zhongtiaoshan Nonferrous Metals Corp.	Ausmelt	Operating	1960		Concs.	Old Blast furnace closed 2008. New smelter.	50	200	200	200	200	200	
Congo			**Operating+developing**					**63**	**63**	**63**	**63**	**63**	**63**	
Congo			**Planned**										**0**	**300**
Congo			**Total Status**					**63**	**63**	**63**	**63**	**63**	**63**	**300**
Kamoa Smelter	Ivanhoe Mines Ltd 95%, DRC government 5%	Flash Smelter	Planned	2022		Concs.	The smelting process is based on the use of Direct-to-Blister flash smelting technology (DBF). For slag cleaning, a two-stage electric furnace process is applied. Concs smelting capacity 800Ktpy (300ktpy Cu blister). Average sulphuric-acid production is 1.6Kt per day @ 98.5% sulphuric acid. Year 5 (2022) is the transition year between concentrate production to blister production.						0	300
Lubumbashi Slag Treatment (STL)	OMG 55%, George Forrest Int., Gecamines	Blast Furnace	Operating	2000		Concs.	Production of cobalt / copper alloy from slag.	3	3	3	3	3	3	
Luilu (Kolwezi)	La Générale des Carrières et des Mines - Gecamines	Electrowinning (LG)	Operating	1960		Concs.	Low Grade EW.	30	30	30	30	30	30	
Shituru Electrolysis Plant	La Générale des Carrières et des Mines - Gecamines	Electrowinning (LG)	Operating	1929		Concs.	Low Grade SX-EW.	30	30	30	30	30	30	

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Table 2: WORLD COPPER SMELTERS PRODUCTION CAPACITY 2012 To 2017

Smelters	Operator/Owner(s)	Process	Status	Start Up	Date of Closure	Raw Materials	Short Remarks	2012	2013	2014	2015	2016	2017	Project Cap.
Egypt			**Planned**										**0**	**300**
Egypt			**Total Status**										**0**	**300**
Red Sea Copper	El Sewedy Cables 74%, Glencore plc Int. AG 26%	Unkown Smelters	Planned				Planned capacity of 300ktpy Cu. Project deferred.						0	300
Finland			**Operating+developing**					**210**	**210**	**210**	**210**	**210**	**210**	
Finland			**Total Status**					**210**	**210**	**210**	**210**	**210**	**210**	
Harjavalta	Boliden	Outokumpu Flash	Operating	1995		Concs.	Expansion from 165 to 210ktpy in early 2008.	210	210	210	210	210	210	
Germany			**Operating+developing**					**630**	**630**	**630**	**630**	**630**	**630**	
Germany			**Total Status**					**630**	**630**	**630**	**630**	**630**	**630**	
Hamburg	Aurubis	Outokumpu, Contimelt, Electric	Operating	1866		Concs.,Blister, Scrap	Norddeutsche Affinerie AG changed name to Aurubis. In 2013, expansion in concs throughput capacity from 1.1MT to 1.25Mt, increase in cathode output to 416ktpy and improvement in thankhouse efficiency	450	450	450	450	450	450	
Huettenwerke Kayser (smelter)	Aurubis (98%)	Isasmelt Process	Operating	1861		Blister, Scrap, Complex Materials.	Use of Isa Process/ Kayser Recycling System. Norddeutsche Affinerie AG changed name to Aurubis.	180	180	180	180	180	180	
India			**Operating+developing**					**948**	**948**	**948**	**948**	**948**	**948**	
India			**Closed**											
India			**Total Status**					**948**	**948**	**948**	**948**	**948**	**948**	
Birla Copper (Dahej)	Birla Group	Outokumpu Flash, Ausmelt, Mitsubishi Continuous	Operating	1998		Concs.	see note on refinery	500	500	500	500	500	500	
Ghatsila Smelter	Hindustan Copper Ltd.	Reverberatory	Operating	1928		Concs.		17	17	17	17	17	17	
Jhagadja (Gujarat)	Jhagadia Copper Ltd. (formerly Swill Ltd)	Boliden Process (S)	Closed	2004		Scrap, Concs.	Started 2004. Closed 2010							
Khetri	Hindustan Copper Co. Ltd.	Outokumpu Flash	Operating	1971		Concs.	Moothballed	31 on C&M	31	31	31	31	31	
Sterlite Smelter (Tuticorin)	Vedanta	Isasmelt Process	Operating	1996		Concs.	Includes new refinery at Tuticorin opened mid 2004. 400ktpa expansion project was to be commissioned in 2011 but EC awaited	400	400	400	400	400	400	

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Table 2: WORLD COPPER SMELTERS PRODUCTION CAPACITY 2012 To 2017

Smelters	Operator/Owner(s)	Process	Status	Start Up	Date of Closure	Raw Materials	Short Remarks	2012	2013	2014	2015	2016	2017	Project Cap.
Indonesia			**Operating+developing**					**300**	**300**	**300**	**300**	**300**	**300**	
Indonesia			**Planned**										**0**	**520**
Indonesia			**Total Status**					**300**	**300**	**300**	**300**	**300**	**300**	**520**
Bontang (smelter)	PT Nusantara Smelting Corp, Norilsk Nickel	Ausmelt	Planned	2019		Concs.	Capacity of 200ktpy cathode, with by-products in the form of 400tpy anode slime and 600ktpy sulfuric acid, and slags and gypsum. Located in the Innovation-Based Industrial Area, North Gresik, within the Sidayu Gresik Industrial Zone. Location intended to ensure that the sulfuric acid produced can be optimized as is adjacent to the Dolomite mine, using it for leaching dolomite to make Kiesrite Fertilizer required for the palm plantations. Startup expected for early 2019. Feasibility study by mid 2015. In 2013 signed Conditional Purchase Agreement of Concentrate with PTNNT (Batu Hijau) and PT Freeport Indonesia (Grasberg)						0	200
Gresik	Mitsubishi (75%), Freeport (25%)	Mitsubishi Flash	Operating	1998		Concs.	Expansion to 275ktpy in Jul 06 and 300 ktpy in 3Q09	300	300	300	300	300	300	
Indovasi (smelter)	PT Indovasi Mineral Indonesia	Unkown Smelters	Planned	2018		Concs.	One of third copper smelters projects to be developped in Indonesia to comply with new ore exports ban law. To be located either in Tuban or Gresik, in East Java. In 2013 signed Conditional Purchase Agreement of Concentrate with PTNNT (Batu Hijau) and PT Freeport Indonesia (Grasberg). Capacity 200ktpy.						0	200
Maros (smelter)	PT Indosmelt	Ausmelt	Planned	2018		Concs.	Construction starts 2014 and to be complete in 2017 with production in 2018. The plant is located in Bontoala Sub-district, Maros Regency, North Sulawesi Province. Planned annual production of 120kt of copper cathodes, 20t of gold, and by-products of 300kt of slags as raw materials for cement factories, 200kt of anode slags for gold refinery industry, and sulfur acid as raw materials for fertilizer industry. In 2013 signed a Conditional Purchase Agreement of Concentrate with PTNNT (Batu Hijau) and PT Freeport Indonesia (Grasberg)						0	120
Iran			**Operating+developing**					**225**	**225**	**225**	**225**	**350**	**500**	**200**
Iran			**Total Status**					**225**	**225**	**225**	**225**	**350**	**500**	**200**
Khatoon Abad (smelter)	National Iranian Copper Industry Co.	Flash Smelter	Operating	2004		Concs., Scrap	Flash Smelter + PS Converters. Expansion from 80 to 120ktpy (from concs.) delayed from 2013 to 2016. Can also treat scrap.	80	80	80	80	120	120	
Sarchesmeh Copper Complex (smelter)	National Iranian Copper Industry Co.	Reverberatory	Operating	1981		Concs., Scrap	Reverbatory + PS Converters. Expansion to 280ktpy(from Concs.) delayed to 2016 and replacing the reverb by flash furnace. Can also treat scrap.	145	145	145	145	230	280	

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Table 2: WORLD COPPER SMELTERS PRODUCTION CAPACITY 2012 To 2017

Smelters	Operator/Owner(s)	Process	Status	Start Up	Date of Closure	Raw Materials	Short Remarks	2012	2013	2014	2015	2016	2017	Project Cap.
Sungun (smelter)	National Iranian Copper Industry Co.	Flash Smelter	Developing	2017		Concs., Scrap	Smelter with 200ktpy (from Concs.). Flash direct to blister. Startup was expected 2013 but delayed to 2017. Can also treat scrap.						100	200
Japan			**Operating+developing**					**1,858**	**1,858**	**1,858**	**1,858**	**1,858**	**1,858**	
Japan			**Total Status**					**1,858**	**1,858**	**1,858**	**1,858**	**1,858**	**1,858**	
Ashio/ Tochigi	Furukawa Co. Ltd.	Outokumpu Flash	Operating	1956		Scrap		2	2	2	2	2	2	
Besshi/ Ehime (Toyo)	Sumitomo Metal Mining Co. Ltd.	Outokumpu Flash	Operating	1971		Concs., Scrap		450	450	450	450	450	450	
Kosaka/ Akita (smelter)	Dowa Metals & Mining Co. Ltd.	Outokumpu Flash	closed			Concs., Scrap	closed in 2010							
Naoshima/ Kagawa (smelter)	Mitsubishi Materials Corp.	Mitsubishi Continuous	Operating	1991		Concs., Scrap		342	342	342	342	342	342	
Onahama/ Fukushima	Mitsubishi Materials Corp. (49.29%), Dowa Metals & Mining Co. Ltd.(31.15%), Furukawa Metals & Resources Co. Ltd. (12.67%)	Mitsubishi/ Reverb.	Operating	1965		Concs.		354	354	354	354	354	354	
Saganoseki/ Ooita (smelter)	Pan Pacific Copper Co. Ltd	Outokumpu Flash	Operating	1970		Concs., Scrap		450	450	450	450	450	450	
Tamano/ Okayama (smelter)	Hibi Kyodo Smelting Co. Ltd.	Outokumpu Flash	Operating	1972		Concs., Scrap		260	260	260	260	260	260	
Kazakhstan			**Operating+developing**					**290**	**290**	**290**	**290**	**290**	**290**	
Kazakhstan			**Total Status**					**505**	**440**	**290**	**290**	**290**	**290**	
Balkash Smelter	Kazakhmys PLC	Reverberatory/ Vanyukov	Operating	1940		Concs.	Installation of Vanyukov bath smelting technology in the 1980s and a second Vanyukov unit in 2004 and the addition of a fourth oxygen workshop in 2007. In July 2014 Kazakhmys announced that will split itself in two with the listed entity keeping the more profitable East Region mines, the Bozymchak, Aktogay and Bozshakol mines and the Koksay project. The remaining assets including the Zhezkazgan and Central region mines and smelters, coal mines and captive power stations would be privatised to Cuprum Holding.	220	220	220	220	220	220	
Ust-Kamenogorsk (smelter)	Kazzinc Glencore plc 69.61%, Verny Capital JSC 30.39%,)	Isasmelt Process	Operating	2010		Concs.	New smelter and refinery. Started production in Sep11. Capacity to treat 370ktpy of copper concentrate and produce 70ktpy copper cathodes, with long-term potential to increase capacity to 87.5ktpy copper cathodes.	70	70	70	70	70	70	
Zhezkazgan Smelter	Kazakhmys PLC	Electric/ Reverberatory	Closed	1973	2013	Concs.	Operations suspended in September 2013	215	150					

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Table 2: WORLD COPPER SMELTERS PRODUCTION CAPACITY 2012 To 2017

Smelters	Operator/Owner(s)	Process	Status	Start Up	Date of Closure	Raw Materials	Short Remarks	2012	2013	2014	2015	2016	2017	Project Cap.
Korea Republic			**Operating+developing**					**545**	**570**	**570**	**570**	**570**	**570**	
Korea Republic			**Total Status**					**545**	**570**	**570**	**570**	**570**	**570**	
Onsan	Korea Zinc	Isasmelt Process	Operating				Copper matte furnace adopted TSL Process.	25	50	50	50	50	50	
Onsan I	LS-Nikko Co. (LS, Nippon Mining)	Outokumpu Flash	Operating	1979		Concs., Scrap		220	220	220	220	220	220	
Onsan II	LS-Nikko Co. (LS, Nippon Mining)	Mitsubishi Continuous	Operating	1998		Concs.		300	300	300	300	300	300	
Mexico			**Operating+developing**					**300**	**300**	**300**	**300**	**300**	**300**	
Mexico			**Planned**										**100**	**350**
Mexico			**Total Status**					**300**	**300**	**300**	**300**	**300**	**400**	**350**
La Caridad (smelter)	Mexicana de Cobre S. A. (Grupo Mexico)	Outokumpu/ Teniente Converter	Operating	1985		Concs.		300	300	300	300	300	300	
Empalme (smelter)	Southern Copper Corp.	Unkown Smelters	Planned	2017		Concs.	Project announced in Aug 2010 and related to the expansion of Cananea. Capacity of 350ktpy. Delayed from 2016 to 2017.						100	350
San Luis Potosi	Industrial Minera Mexico S.A. de C.V.	Blast Furnace	Closed			Concs.	Environmental concerns lower effective capacity. Closed March 2010. Company concentrates that were treated here are now treated at La Caridad smelter.						0	
Mongolia			**Planned**										**0**	
Mongolia			**Total Status**										**0**	
Mongolia Smelter	National Development Corporation of Mongolia	Unkown Smelters	Planned			Concs.	Outotec has entered into cooperation with National Development Corporation of Mongolia (NDC) to conduct a conceptual study for a copper smelter to be located in Sainshand, Mongolia. NDC is a consortium of the largest Mongolian private sector companies. The Government of Mongolia plans to build an industrial complex in Sainshand to add value to mineral deposits such as Oyu Tolgoi copper deposit and to diversify the economy.						0	

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Table 2: WORLD COPPER SMELTERS PRODUCTION CAPACITY 2012 To 2017

Smelters	Operator/Owner(s)	Process	Status	Start Up	Date of Closure	Raw Materials	Short Remarks	2012	2013	2014	2015	2016	2017	Project Cap.
Namibia			**Operating+developing**					**50**	**50**	**50**	**50**	**50**	**50**	
Namibia			**Total Status**					**50**	**50**	**50**	**50**	**50**	**50**	
Tsumeb Smelter	Dundee Precious Metals Inc	Ausmelt	Operating			Concs.	Exp of Ausmelt furnace in 08. Commission of oxygen plant in 2010 increasing capacity. Weatherly Inernational sold smelter to Dundee Precious Metals in Mar10. Treats Chelopec and El Brocal concentrates. To comply with environmental standards will install by end 2014 gas cleaning system and acid plant. Can treat 240Kt-320Ktpy of complex concentrate. In Aug 2013, the reverberatory furnace was permanently closed. Plans for the installation of an electric holding furnace to temporarily store and upgrade copper matte until it can be transferred to a converter furnace for final processing.	50	50	50	50	50	50	
North Korea			**Operating+developing**					**80**	**80**	**80**	**80**	**80**	**80**	
North Korea			**Total Status**					**80**	**80**	**80**	**80**	**80**	**80**	
Hungnam Smelter	North Korean Government	Blast Furnace	Operating			Concs., Scrap		40	40	40	40	40	40	
Nampo Smelter	North Korean Government	Blast Furnace	Operating	1914		Concs., Scrap	Associated with large nonferrous metals complex.	40	40	40	40	40	40	
Oman			**Operating+developing**					**35**	**35**	**35**	**35**	**35**	**35**	
Oman			**Total Status**					**35**	**35**	**35**	**35**	**35**	**35**	
Sohar Copper Smelter	Oman Mining Co.	Electric	Operating			Concs.		35	35	35	35	35	35	
Pakistan			**Operating**					**20**	**20**	**20**	**20**	**20**	**20**	
Pakistan			**Total Stat**											
Saindak (smelter)	Balochistan Gov. 35%, Federal Gov. 15%, MCC - China Metalurgical Construction Corp 50%	Reverberatory	Operating	1995		Concs.		20	20	20	20	20	20	
Peru			**Operating+developing**					**430**	**430**	**430**	**430**	**430**	**430**	
Peru			**Total Status**					**430**	**430**	**430**	**430**	**430**	**430**	
Ilo Smelter	Southern Copper Corp. (Grupo Mexico 75.1%)	Isasmelt Process	Operating			Concs.	Modernization Feb07. In 2009, construction of a marine trestle to offload directly to offshore ships the sulfuric acid produced at the smelter.	360	360	360	360	360	360	
La Oroya Smelter	Doe Run	Reverberatory	Operating	1922		Concs.	Production stopped Jun09 and due to restart in 1H10. Government requested definitive closure in July09 as company not able to restart plant nor meet its environmental cleanup plan and honor its debts. On C&M	70	70	70	70	70	70	

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Table 2: WORLD COPPER SMELTERS PRODUCTION CAPACITY 2012 To 2017

Smelters	Operator/Owner(s)	Process	Status	Start Up	Date of Closure	Raw Materials	Short Remarks	2012	2013	2014	2015	2016	2017	Project Cap.
Philippines			**Operating+developing**					**250**	**250**	**250**	**250**	**250**	**350**	
Philippines			**Total Status**					**250**	**250**	**250**	**250**	**250**	**350**	
Isabel/ Leyte (PASAR)	Glencore plc 78.2%, Local investors 21.8%	Outokumpu Flash	Operating	1983		Concs.	Expanded to 250kt in Feb06. Plans to double capacity.	250	250	250	250	250	350	
Poland			**Operating+developing**					**669**	**669**	**679**	**679**	**684**	**689**	
Poland			**Total Status**					**669**	**669**	**679**	**679**	**684**	**689**	
Glogow I	KGHM Polska Miedz, S.A. (KGHM)	Blast Furnace	Operating	1971		Concs., Scrap	In May 2010 approved modernisation by 2013-2014 that consists in replacing the old shaft furnaces with the modern Outotec flash furnace	230	230	230	230	230	230	
Glogow II	KGHM Polska Miedz, S.A. (KGHM)	Outokumpu Flash	Operating	1976		Concs., Scrap		300	300	310	310	310	310	
Hutmen	Hutmen S.A.	Blast Furnace (S)	Operating			Scrap		9	9	9	9	9	9	
Legnica Smelter	KGHM Polska Miedz, S.A. (KGHM)	Blast Furnace	Operating	1959		Concs., Scrap		130	130	130	130	135	140	
Romania			**Closed**											
Romania			**Total Status**											
Baia Mare (smelter)	Cuprom S.A.	Outokumpu Flash	Closed	1956	2004	Concs.	Closed 2004							
Russia			**Operating+developing**					**1,085**	**1,085**	**1,095**	**1,115**	**1,115**	**1,115**	
Russia			**Total Status**					**1,085**	**1,085**	**1,095**	**1,115**	**1,115**	**1,115**	
Karabash Smelter (Urals)	Russian Copper Comp.	Ausmelt	Operating			Concs., Scrap	First modernization stage included up-to-date gas and water cleanup systems of Boliden Contech AB, WSA unit of Haldor Topsoe A.S to recover sulfur dioxide gas and convert it into marketable sulfuric acid. Second modernization stage in 2006 included Ausmelt copper-smelting furnace and capacity increase to 90ktpy blister copper. Oct-Nov replaced old furnace to increase the degree of extraction of copper and to increase capacity to 120ktpy.	90	90	100	120	120	120	
Kirovgrad (Kalata)	Uralelectromed (Urals Mining & Metallurgical Co.)	Reverberatory (S)	Operating			Scrap (mainly)		50	50	50	50	50	50	
Krasnouralsk Smelter (Svyatogor)	Uralelectromed (Urals Mining & Metallurgical Co.)	Reverberatory	Operating	1931		Concs.		70	70	70	70	70	70	
Mednogorsk Smelter (Urals)	Uralelectromed (Urals Mining & Metallurgical Co.)	Blast Furnace	Operating			Concs., Scrap		40	40	40	40	40	40	
Nadezhda	Norilsk Nickel	Outokumpu Flash	Operating	1984		Ni/Cu Concs.	Includes Cu in Ni concentrates.	100	100	100	100	100	100	
Norilsk (Nikelevy, Medny)	Norilsk Nickel	Reverb, Electric, Vanyukov	Operating	1945		Ni/Cu Concs.	Includes Cu in Ni concentrates.	400	400	400	400	400	400	

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Table 2: WORLD COPPER SMELTERS PRODUCTION CAPACITY 2012 To 2017

Smelters	Operator/Owner(s)	Process	Status	Start Up	Date of Closure	Raw Materials	Short Remarks	2012	2013	2014	2015	2016	2017	Project Cap.
Novgorod (smelter)	Russian Copper Comp.	Outokumpu Flash	Operating	2003		Scrap	Started 2003. Specializes in processing secondary raw materials with copper content of 60-95%. Outotec Wenmec technology. In 2005, capacity expanded from 40 to 75ktpy cathodes. Outotec's t converter for processing alloys with low copper content. Industrial complex includes 180-ton melting furnace Maerz used for processing of a copper-rich scrap; Outotec teeming complex and electrolysis baths	75	75	75	75	75	75	
Pechenganikel	Pechenganikel	Electric	Operating	1944		Cu/Ni Concs.	Cu in Cu/Ni matte.	40	40	40	40	40	40	
Severonikel (Kola Peninsula)	Severonikel	Electric	Operating	1939		Cu/Ni Concs., Scrap	Copper scrap smelting unit with a capacity of 40,000 tpy installed.	60	60	60	60	60	60	
Sredneuralsk Smelter (SUMZ)	Uralelectromed (Urals Mining & Metallurgical Co.)	Reverb./ Blast/ Vanyukov	Operating	1940		Concs., Scrap	2009 reconstruction finished. New acid plant.	160	160	160	160	160	160	
Saudi Arabia			**Planned**										**0**	**350**
Saudi Arabia			**Total Status**										**0**	**350**
Tasnee	Saudi Industrial Group Tasnee, Nabaa Industrial Development and Investment	Unkown Smelters	Planned				Jan 2010 announced plans for a 100ktpy smelter with possibility to expand to 200ktpy.Tasnee Group has 10% in the Al Masane mine						0	200
Ma'aden Smelter	Ma'aden Aluminium Company	Unkown Smelters	Planned				In 2012 awarded Betchel the feasibility study for a 150ktpy copper smelter.						0	150
Serbia			**Operating+developing**					**170**	**170**	**80**	**80**	**80**	**80**	
Serbia			**Total Status**					**170**	**170**	**80**	**80**	**80**	**80**	
Bor (smelter)	RTB Bor	Reverberatory	Operating	1980		Concs. from Serbia	Production constrained to around 40ktpy after 2000. Agreement with Canadian Agency for Export and Development to fund modernization of the plant. To replace old reverb smelter by Outotec Flash Furnace with capacity of 80ktpy. Smelter will treat around 400ktpy Cu concentrates @ 20%Cu. New acid plant. Stratup delayed due to lack of building permits from 2013 to end 2014.	170	170	80	80	80	80	
Slovakia			**Operating+developing**					**80**	**80**	**80**	**80**	**80**	**80**	
Slovakia			**Total Status**					**80**	**80**	**80**	**80**	**80**	**80**	
Krompachy (smelter)	Montanwerke Brixlegg (66.6%)	Reverberatory (S)	Operating			Scrap	New furnace Oct 2008. Cap 80 ktpy.	80	80	80	80	80	80	
South Africa			**Operating+developing**					**130**	**130**	**130**	**130**	**130**	**130**	
South Africa			**Total Status**					**130**	**130**	**130**	**130**	**130**	**130**	
Impala Platinum Smelter	Impala Platinum Ltd.	Electric	Operating			Cu/Ni/Pt Concs.		7	7	7	7	7	7	

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Table 2: WORLD COPPER SMELTERS PRODUCTION CAPACITY 2012 To 2017

Smelters	Operator/Owner(s)	Process	Status	Start Up	Date of Closure	Raw Materials	Short Remarks	2012	2013	2014	2015	2016	2017	Project Cap.
Palabora Smelter	Palabora Mining Co. (Industrial Development Corporation of South Africa 20%, Hebei Iron and Steel Group 35%, General Nice 20%, Tewoo 20%, CAD Fund 5%)	Reverberatory	Operating	1964		Concs.	Rebuilt furnace in Feb 06. Production expanded to 110kt. Rio Tinto divested its 57.7% effective shareholding in the company and Aglo American of its 16.8% effective July 2013	110	110	110	110	110	110	
Rustenburg Smelter	Anglo American Platinum Corp.	Electric	Operating			Pt/Au, Ni/Cu Concs.	Capacity is Cu content of matte.	11	11	11	11	11	11	
Western Platinum Smelter	Western Platinum Ltd. (Lonmin Platinum)	Electric	Operating			Cu/Ni/Pt Concs.		2	2	2	2	2	2	
Spain			**Operating+developing**					**320**	**320**	**320**	**320**	**320**	**320**	
Spain			**Total Status**					**320**	**320**	**320**	**320**	**320**	**320**	
Huelva	Atlantic Copper S.A. (Freeport McMoran)	Outokumpu Flash	Operating	1975		Concs.		320	320	320	320	320	320	
Sweden			**Operating+developing**					**250**	**250**	**250**	**250**	**250**	**250**	
Sweden			**Total Status**					**250**	**250**	**250**	**250**	**250**	**250**	
Ronnskar (smelter)	Boliden Mineral AB	Electric (TBRC)	Operating	1926		Concs., Scrap	On April 2010, approved investment to increase electronic scrap smelting capacity from 45,000 tonnes to 120,000 tonnes and to become operational end of 2011/beginning of 2012.	250	250	250	250	250	250	
Tanzania			**Operating**					**5**	**18**	**18**	**18**	**18**	**18**	
Tanzania			**Planned**										**0**	**300**
Tanzania			**Total Status**					**5**	**18**	**18**	**18**	**18**	**18**	**300**
Smelter Tanzania	City Energy & Infrastructure LLC	Unkown Smelter	Planned			Concs.	In october 2011 company announced smelter project of 300ktpy blister capacity. Construction to take about 24 to 36 months. Project cancelled						0	300
Danformation Smelter	Danformation Ltd	Unkown Smelters	Operating	2012			Started mid 2012. Treats copper oxide from small producers in Tanzania to produce copper blister at 95% Cu exported to the international market. Capacity 18ktpy. Possibility of expansion as have permits to build 4 more furnaces.	5	18	18	18	18	18	
Thailand			**Closed**											
Thailand			**Total Status**											
Rayong Copper (smelter)	Thai Asset Management Co. 40%, Thai Film industry 30%, Aker Kvaerner 30%	Teniente Converter	Closed	2004	2007	Concs.	Technical problems drastically reduced production 2005-2007. Closed Apr 07 due to financial problems.							

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Table 2: WORLD COPPER SMELTERS PRODUCTION CAPACITY 2012 To 2017

Smelters	Operator/Owner(s)	Process	Status	Start Up	Date of Closure	Raw Materials	Short Remarks	2012	2013	2014	2015	2016	2017	Project Cap.
Turkey			**Operating+developing**					**40**	**40**	**40**	**40**	**40**	**80**	
Turkey			**Total Status**					**40**	**40**	**40**	**40**	**40**	**80**	
Samsun	Eti Bakir A.S. (Cengiz Holding)	Outokumpu Flash	Operating	1973		Concs.	Former owner Karadeniz Bakir Isletmeleri (KBI). Capacity is 40ktpy Cu and 200ktpy Sulfuric Acid. Sign a contract with Outotec in Dec 2013 to modernize and double capacity of the smelter and reduce emissions with works to be undertaken from late 2014 to 2016.	40	40	40	40	40	80	
Ukraine			**Operating+developing**					**18**	**18**	**18**	**18**	**18**	**18**	
Ukraine			**Total Status**					**18**	**18**	**18**	**18**	**18**	**18**	
Pancomm (smelter)	Pancomm	Blast Furnace	Operating			Scrap	Black copper production.	18	18	18	18	18	18	
United States			**Operating+developing**					**710**	**710**	**710**	**710**	**710**	**710**	
United States			**Total Status**					**710**	**710**	**710**	**710**	**710**	**710**	
Garfield (smelter)	Kennecott (Rio Tinto)	Kennecott/ Outokumpu	Operating	1995		Concs.	In Aug 2013 announced that Outotec will supply the latest flash smelting technology improvments to the upgrade of Garfield smelter in 2014.	320	320	320	320	320	320	
Hayden	Grupo Mexico	Inco Flash	Operating	1984		Concs.	Operating @ reduced rate	210	210	210	210	210	210	
Miami (smelter)	Freeport-McMoRan Copper & Gold Inc.	Isasmelt/ Electric	Operating	1992		Concs.		180	180	180	180	180	180	
Uzbekistan			**Operating+developing**					**115**	**115**	**115**	**115**	**115**	**115**	
Uzbekistan			**Total Status**					**115**	**115**	**115**	**115**	**115**	**115**	
Almalyk Smelter	Almalyk Mining and Metallurgical Combine	Reverberatory/ Oxy flame	Operating	1965		Cu/Zn Concs.	Company undergoing a Program for modernization, technical and technological re-equipment of in 2013-2015 including new Sulfur-Acid Plant and smelting furnace. In Oct 2013 Engineering Dobersek won a tender to build a new 16,700 tonnes per year copper smelting furnace scheduled for completion in October 2015. The project will be financed in part by a loan of the Fund for Reconstruction and Development of Uzbekistan.	115	115	115	115	115	115	
Vietnam			**Operating+developing**					**11**	**11**	**11**	**11**	**11**	**11**	
Vietnam			**Total Stat**					**11**	**11**	**11**	**11**	**11**	**11**	
Sin Quen	Vietnam National Coal and Mineral Industries Group (Vinacomin)	Electric	Operating	2006		Concs.	Started Jun 06.	11	11	11	11	11	11	
Zambia			**Operating+developing**					**730**	**810**	**860**	**1,010**	**1,110**	**1,210**	**300**
Zambia			**Total Status**					**730**	**810**	**860**	**1,010**	**1,110**	**1,210**	**300**
Chambishi (smelter)	China's Nonferrous Metals Mining Co. 80%, Yunnan Copper Industry 20%	Isasmelt Process	Operating	2009		Concs.	Startup Jan 09. Capacity 150 ktpy. Treats Lumwana concs. Expansion to 250kt Cu and 600kt sulfuric acid in 2012.	170	250	250	250	250	250	

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Table 2: WORLD COPPER SMELTERS PRODUCTION CAPACITY 2012 To 2017

Smelters	Operator/Owner(s)	Process	Status	Start Up	Date of Closure	Raw Materials	Short Remarks	2012	2013	2014	2015	2016	2017	Project Cap.
Kansanshi (smelter)	First Quantum Minerals Ltd	Isasmelt Process	Developing	2014		Concs.	Blister production 300ktpy, acid production 1Mtpa. Processing capacity of 1.2 Mtpa. Concentrate feed from Sentinel and Kansanshi. Starts 2H2014 and expected to achieve 100% cap in early 2016. Phase 2 being planned to increase processing capacity to between 2 to 2.4 Mtpa in 2017			50	200	300	400	300
Mufulira (smelter)	Mopani Copper Mines plc. (First Quantum Minerals Ltd 16.9%, Glencore plc 73.1%, Zambia Consolidated Copper Mines Ltd. - ZCCM 10%)	Electric	Operating	1931		Concs.	The capacity of the smelter (620k DMT of concentrate per annum as at December 2010) is being expanded in a phased approach to 720k DMT of concentrate per annum by the end of 2012. This would include installation of new Peirce-Smith converters and building a new acid plant.	230	230	230	230	230	230	
Nchanga (smelter)	Konkola Copper Mines (Vedanta 51%, Zambia Copper Investments Ltd. (ZCI) 28.4%, ZCCM 20.6%)	Outokumpu Flash	Operating	2008		Concs.	Started 4Q 08.	310	310	310	310	310	310	
Nkana (Rhokana)	Konkola Copper Mines (Vedanta 51%, Zambia Copper Investments Ltd. (ZCI) 28.4%, ZCCM 20.6%)	Reverberatory/ Teniente Conv.	Closed	1933	2009	Concs.	Closed Mar09 and replaced by new Nchanga smelter.							
Nkana Cobalt Plant (RLE)	Mopani Copper Mines	Electrowinning (RLE)	Operating			Concs.	Low Grade SX-EW. Using Nchanga and Nkana cobalt concs.	20	20	20	20	20	20	
World		**Smelter**	**Operating**					**18,610**	**19,422**	**20,351**	**20,871**	**21,087**	**21,032**	
World		**Smelter**	**Developing**							**50**	**200**	**300**	**500**	**500**
World		**Smelter**	**Planned**										**100**	**2,220**
World		**Smelter**	**Closed**					**435**	**300**	**140**	**140**	**140**	**140**	
World		**Smelter**	**Total Status**					**19,045**	**19,722**	**20,541**	**21,211**	**21,527**	**21,772**	**2,720**

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Table 3: WORLD COPPER REFINERIES PRODUCTION CAPACITY 2012 To 2017

Thousand metric tonnes copper

Refineries	Operator/Owner(s)	Process	Status	Start Up	Date of Closure	Raw Materials	Short Remarks	2012	2013	2014	2015	2016	2017	Project Cap.
Argentina		**Refinery**	**Operating**					**16**	**16**	**16**	**16**	**16**	**16**	
Argentina		**Refinery**	**Planned**										**0**	**279**
Argentina		**Refinery**	**Total Status**					**16**	**16**	**16**	**16**	**16**	**16**	**279**
San Jorge (SX-EW)	Coro Mining Corp.	Electrowinning	Planned			Leach	Mineral reserves of 48.4 million tonnes, with an average grade of 0.61%CuT, of which 55% is oxide and 45% is enriched. Completed PFS for 24 ktpy Cu bi-provincial heap leach project, involving transport of ore from mine site in Mendoza to proposed SXEW plant site in San Juan province due to a ban on sulphuric acid use in Mendoza state. Mine life 10Y. Dec 2013 signed a binding Heads of Agreement ("HOA") with a group comprised of Aterra Investments Ltd. and Solway Industries Ltd. for them to have rights to acquire an interest in the San Jorge project .						0	24
Los Azules (SX-EW)	McEwen Mining Inc.	Electrowinning	Planned			Leach	Annual copper production during years 1-5 to average 255kt. Life of mine annual copper production to average 171kt over 35 years. Indicated resource of 5.4 Bl lb Cu (0.63% Cu) and 0.8 Moz and Inferred resource of 14.3 Bl lb Cu (0.46% Cu) and 2.6 Moz Au. The mine would produce a copper cathode via a pressure oxidative leach process, in addition to heap leaching the lower grade mineralized material.						0	255
Various Small Plants	Various	Fire Refining/ Electric	Operating			Scrap	Estimated 16,000 tpy from various small operations.	16	16	16	16	16	16	
Australia		**Refinery**	**Operating**					**618**	**618**	**618**	**618**	**569**	**321**	
Australia		**Refinery**	**Developing**											
Australia		**Refinery**	**Planned**										**0**	**15**
Australia		**Refinery**	**Closed**	**(includes C&M)**				**120**	**120**	**120**	**120**	**120**	**120**	
Australia		**Refinery**	**Total Status**					**738**	**738**	**738**	**738**	**689**	**441**	**15**
Browns Oxide Project (SX-EW)	Compass Resources (90%)	Electrowinning	Operating	2008		Leach	Started May 2008, capacity 10ktpy. Mine life 10 years. Possible conc prod (sulfide project). On Jan 2009, Compass Resources went into voluntary administration. Mine on C&M since end 2010.	10	10	10	10	10	10	
Lady Annie (SX-EW)	CST Mining Group Ltd.	Electrowinning	Operating	2007		Leach	Started Jun07. CopperCo entered receivership in Nov08. Mining activities suspended in Mar09. CST Mining acquired mine in May 2010 and mine restarted production in Nov 2010.	30	30	30	30	30	30	
Mt Cuthbert & Mt Watson Project (SX-EW)	Malaco Leichard Pty	Electrowinning	Operating	1997, 2007		Leach	Closed in 2002. Restarted Jun07. Mt Cuthbert processing facility + Mt Watson & Leichhardt deposit. Exp. to 9ktpy in 2008. Matrix Metals placed in receivership Nov08. On full C&M since Feb09. Cape Lambert acquired mine in 2010. Malaco Leichardt Pty bought mine in 2013 and production restarted in Feb 2014. Capacity of 9ktpy cathode with potential to further increase capacity via modular expansions	9	9	9	9	9	9	
Nifty (SX-EW)	Aditya Birla Minerals	Electrowinning	Closed	1993	2009	Copper-bearing fluids	Concentrate production started 3Q05. Cathode production ended in 2009 with ceasing of oxide ore mining.							
Olympic Dam (refinery)	BHP Billiton	Electrolytic	Operating	1988		Anode	Planned expansion to 750kt to be developped over a period of 11years.	250	250	250	250	250	250	

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Olympic Dam (SX-EW)	BHP Billiton	Electrowinning	Operating	1988		Leach	Project: new OP mine operating simultaneously with existing UG mine. Smelter to be expanded,new concentrator & hydrometallurgical plants to be built. Additional 1.8Mtpy of Concs and 515kt cathode. Expansion would be a progressive development with construction activity over a period of 11 years. An Identification Phase Study is being conducted to identify all possible mining methodes and less capital intensive designs.	15	15	15	15	15	15	
Port Kembla	Furukawa (71.44%), Nittetsu Mining (20%), Nissho Iwai (5.45%), Itochu (3.11%)	Electrolytic	Closed	2000	2003	Primary & Secondary anode	On care & maintenance since September 2003.	120	120	120	120	120	120	
								on C&M						
Port Pirie (SX-EW)	Nyrstar	Electrowinning	Operating	1984		Leach	By-product. Expansion to 7kt cathode planned for 2016	4	4	4	4	5	7	
Townsville	Glencore plc	Electrolytic	Operating	1959	2016	Primary & Secondary anode	Announced plans to sustain the future of Mount Isa operations through expanded mining and concentrate production, while phasing out copper smelting at Mount Isa and refining operations in Townsville by the end of 2016	300	300	300	300	250	0	
Whim Creek (SX-EW)	Venturex Resources	Electrowinning	closed	2005	2009	Leach	Mining ceassed Jun 09. Straits Resources sold SX-EW pant to Finders Resources for the Wetar project and sold Whim Creek project to Venturex Resources that will re-evaluate high grade sulphide mineralisation below oxide pit and design a drill program to confirm and extend known resources.						0	
White Range Project (SX-EW)	Queensland Mining Corporation Limited	Electrowinning	Planned			Leach	Possible 15-20ktpy cathode for mine life around 10 years. Bought by QMC in 2009 after Matrix Metals Ltd entered voluntary administration. Resource of 4.7Mt @1.1% Cu						0	15
Austria		**Refinery**	**Operating**					**110**	**110**	**110**	**110**	**110**	**110**	
Brixlegg	Montanwerke Brixlegg	Electrolytic (S)	Operating			Imported Blister & Scrap	Refinery capacity expanded to 110 kt in 2006-2007.	110	110	110	110	110	110	
Belgium		**Refinery**	**Operating**					**408**	**408**	**408**	**408**	**408**	**408**	
Beerse (refinery)	La Metallo Chimique S.A.	Electrolytic (S)	Operating			Anode	Replacement of old tankhouse by new one with same capacity in 2010.	35	35	35	35	35	35	
Hoboken (EW)	Umicore	Electrowinning	Operating	2002			Cu leaching & electrowining plant treats smelter output.	28	28	28	28	28	28	
Olen	Aurubis	Electrolytic	Operating	1996		Anode, Scrap	Cumerio purchased by Norddeutsche Affinerie AG and name changed to Aurubis.	345	345	345	345	345	345	
Bolivia		**Refinery**	**Operating**					**4**	**4**	**4**	**4**	**4**	**4**	
Corocoro (SX-EW)	Korea Resources Corp. 45%, Corporación Minera de Boliviana (COMIBOL) 55%	Electrowinning	Operating	2009		Leach	Closed 1985. Reopened Oct. 2009. Production capacity of 4ktpy Cu with possibility to expand.	4	4	4	4	4	4	

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Refineries	Operator/Owner(s)	Process	Status	Start Up	Date of Closure	Raw Materials	Short Remarks	2012	2013	2014	2015	2016	2017	Project Cap.
Brazil		**Refinery**	**Operating**					**265**	**285**	**285**	**285**	**280**	**280**	
Brazil		**Refinery**	**Planned**										**0**	**40**
Brazil		**Refinery**	**Closed**											
Brazil		**Refinery**	**Total Status**					**265**	**285**	**285**	**285**	**280**	**280**	**40**
118 Project (SX-EW)	Vale (50%), BNDES (50%)	Electrowinning	Planned			Leach	Capacity 40ktpy Cu						0	40
Camacari (refinery)	Caraíba Metais S.A. (Paranapanema S.A.)	Electrolytic	Operating	1982		Anode	Expansion to 280kt delayed to mid 2012. Further expansion to 320kt may be considered.	260	280	280	280	280	280	
Jaguarari (Sx-EW)	Mineração Caraiba SA (Glencore plc 28.5%)	Electrowinning	Operating	2007	2015	Leach	Started SX-EW plant in 2007, to close in 2015.	5	5	5	5			
UHC (SX-EW)	Vale	Electrowinning	Closed	2008	2010		Hydrometalurgical pilot test plant to treat Sossego complex ore. Cap 10ktpy Cu. Started Dec08, closed Jun10.							
Bulgaria		**Refinery**	**Operating**					**230**	**230**	**230**	**230**	**230**	**230**	
Pirdop	Aurubis (99.77%)	Electrolytic	Operating	1964		Anode	New 180,000tpy tankhouse started Q2 2008. Old one closed. Cumerio purchased by Norddeutsche Affinerie AG and name changed to Aurubis.	230	230	230	230	230	230	
Canada		**Refinery**	**Operating**					**383**	**383**	**383**	**383**	**383**	**383**	
Canada		**Refinery**	**Planned**									**7**	**15**	**15**
Canada		**Refinery**	**Closed**											
Canada		**Refinery**	**Total Status**					**383**	**383**	**383**	**383**	**390**	**398**	**15**
Carmacks (SX-EW)	Copper North Mining Corp.	Electrowinning	Planned	2016		Leach	Capacity 15ktpy Cu. Mine life 7years. Starts 1Q2016					7	15	15
CCR Refinery (Montreal)	Glencore plc	Electrolytic	Operating	1931		Anode	Treats Sudbury anodes from Jan 06.	370	370	370	370	370	370	
Gibraltar (SX-EW)	Taseko Mines Ltd. 75%, Japanese Consortium 25%	Electrowinning	Operating	2006		Leach	Closed in 1992. Reopened Nov04. SX-EW started Dec 06. Exp to 82Kt by end 2012. 25% of Gibraltar mine sold in March 2010 to a Japanese Consortium (Sojitz Corporation 50%, Dowa Metals & Mining Co., Ltd. 25%, Furukawa Co., Ltd. 25%) 27 years of mine life. SX-EW plant temporarily closed in 2013 restarting in 2014	4	4	4	4	4	4	
Kidd Creek (Timmins)	Glencore plc	Electrolytic	Closed	1981	2010	Anode	Ceased operation in May 2010 as part of a plan to restructure its Canadian metallurgical operations. The Kidd mine and concentrator will remain in operation.							
Sudbury EW (Copper Cliff)	Vale Inco Ltd.	Electrowinning	Operating			Matte		9	9	9	9	9	9	
Chile		**Refinery**	**Operating**					**3,330**	**3,275**	**3,233**	**3,181**	**3,146**	**3,136**	
Chile		**Refinery**	**Developing**								**31**	**90**	**92**	**92**
Chile		**Refinery**	**Planned**										**2**	**66**
Chile		**Refinery**	**Closed**					**10**	**6**					
Chile		**Refinery**	**Total Status**					**3,340**	**3,281**	**3,233**	**3,212**	**3,236**	**3,230**	**158**
Amalia (Catemu) (SX-EW)	CEMIN	Electrowinning	Operating	1973, 2007		Leach	Built by Enami in 1973 as purchasing power, for the treatment of insoluble copper minerals. In 1982, was acquired by the Mining Company Limited Catemu, operating continuously until 1999. It was reopened in 2007.	14	15	15	14	14	14	

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Andacollo (SX-EW)	Teck Resources Ltd 90%, ENAMI 10%	Electrowinning	Operating	1996	2014	Leach	Concentrate production started 1Q10, SX-EW ends in 2014. Feasibility study to examine adding an additional SAG mill, ball mill and other associated plant and equipment aimed at increasing annual production of contained copper to 120,000 tonnes. Copper grades declining, but above reserve grade until 2018	5	5	5				
Antucoya (SX-EW)	Antofagasta Plc 70%, Marubeni Corporation 30%	Electrowinning	Developing	2015	2035	Leach	Resources of 1.5 billion tonnes @ 0.27% copper. Greenfield project expected to produce around 85ktpy cathode in 1st 5 years. Mine lfe 20Y. Startup was expected for 2014 but delayed to 1H 2015 as in Dec 2012 company decided to temporarily suspend development to enable review of the project given potential levels of cost escalation. In 2013 decidded to proceed with project development. Will use sea water.				30	85	85	85
Berta (SX-EW)	Coro Mining Corp.	Electrowinning	Developing	2015		Leach	5-10k tpy Cu open-pit, heap-leach project. Pregnant Leach Solution (PLS)/water pipeline to third party SXEW plant. Mine located at 33 km from Anglo American's Manto Verde copper mine. Coro has identified potential for additional copper oxide resources elsewhere on the property, and in the surrounding district.				1	5	7	7
Caserones (SX-EW)	Pan Pacific Copper Co.	Electrowinning	Operating	2013	2040	Leach	Former Regalito Project. Average production during initial 5 years: 150kt Cu in concentrates and 30kt SXEW cathodes. Avg production LOM (28 years): 110ktpy Cu in concs and 10kt cathodes. Cathode production started Mar 2013 with capacity to be reached in 2015. Concentrate production in 2014.		10	10	20	30	30	
Cerro Colorado (SX-EW)	BHP Billiton (100%)	Electrowinning	Operating	1994		Leach	Mine life until 2021 but currently evaluating the extend of hypogene mineralisation that may support further extention options.	80	80	80	70	70	70	
Cerro Dominador (SX-EW)	Copec Group	Electrowinning	Operating	2004		Leach	Copec, a diversified Chilean Group, aquired Dominador and Diego de Almagro from the Callejas group in 2010	5	5	5	5	5	5	
Cerro Negro (SX-EW)	Workers cooperative	Electrowinning	Operating	1944		Leach		6	6	6	6	6	6	
Chuquicamata Refinery	Codelco	Electrolytic	Operating			Anode		600	600	600	600	600	600	
Codelco Norte (SX-EW)	Codelco	Electrowinning	Operating	1987		Leach	Codelco Norte formed from 2002 to 2010 included Chuquicamata and Radomiro Tomic (aggregated data in this period, before 2002 and after 2010 only data for Chuqicamata). Nov2010 split of Codelco Norte Division into two independent divisions: Chuquicamata and Radomiro Tomic. Chuqi underground project by 2018/2019 (366ktpy Cu)	50	50	50	50	50	50	
Collahuasi (SX-EW)	Anglo American (44%), Glencore plc (44%), Mitsui + Nippon (12%)	Electrowinning	Operating	1998		Leach	Phase I expansion of 19kt in 2011, Phase II of 20kt in 2014. Phase III expansion of additional 469kt not yet appoved. Prefeasibility study for Phase III envisages construction of one or two new grinding lines, allowing production to rise to 800ktpy with a single line expansion, and to more than one million tonnes with both lines. Measured, Indicated and Inferred Resource at Dec 2012 are around 73Mt copper.	40	30	30	30	30	30	

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Diego de Almagro (SX-EW)	Can Can, Copec Group	Electrowinning	Planned	2017		Leach	IOCG deposit with reserves estimated at 300,00 tons copper and 27,000 oz. Gold. Original plans included oxides and concentrating sulfides to produce 11ktpy SX-EW cathodes and 22ktpy copper concentrate. Phase I SX-EW starts in 2014, concentrates in 2015.						2	11
Dos Amigos (SX-EW)	CEMIN	Electrowinning	Operating			Leach		9	9	9	9	9	9	
El Abra (SX-EW)	Codelco (49%), Freeport-McMoRan Copper & Gold Inc. (51%)	Electrowinning	Operating	1996		Leach	In 2011 started production from its sulfide ores, which is replacing the depleting oxide copper production. The Sulfolix leach pads deferred to 2019. Possible development of a large sulfide deposit to extend mine life by over 20 years with a production of 300ktpy Cu in concentrates to replace depleting cathode production. Future investments will be dependent on technical studies, economic factors and global copper market conditions.	160	160	160	150	140	130	
El Espino (SX-EW)	Sociedad Punta del Cobre (Pucobre) 51%, Explorator Resources 49%	Electrowinning	Planned	2018		Leach	Possible production of 40ktpy cathode. Resources 145Mt grading 0.55% Cu						0	40
El Soldado (SX-EW)	Anglo American (100%)	Electrowinning	Operating	1993		Leach	SX-EW production ended in 2013. Concentrate production continues.	2	1					
El Teniente (refinery)	Codelco Chile	Fire Refining	Closed	1922	2011	Anode	Caletones refinery. Produced RAF - lingotes refinados a fuego. Started in 1922 and shut down end 2011.							
El Teniente (SX-EW)	Codelco	Electrowinning	Operating	1983		Leach	Pilar Norte higher grade area started 2010 to offset decrease in production of other areas. NNM-Nuevo Nivel Mina project in 2018 to extend mine life for +50 years and to maintain capacity at around 430ktpy Cu. Further expansion options possible. En 2013 discovered a new orebody, La Huifa, at 3km from El Teniente with a potencial of 200 Mt @ 0.8-1% Cu.	3	3	3	3	3	3	
El Tesoro / Encuentro Oxides (SX-EW)	Antofagasta Plc (70%), Marubeni Corporation (30%)	Electrowinning	Operating	1997	2024	Leach	2 OP mines feeding a heap-leach and a run-of-mine ("ROM") leaching operation. Inclusion of material from Mirador oxide deposit improving production to aprox 100ktpy from Q4 2011 to 2014. In 1H2016 starts Encuentro Oxides project, OP mine to use spare capacity at El Tesoro SX-EW plant, LOM 8 years, capacity 50ktpy Cu that will enable total production capacity to be maintained at around 100ktpy. In June 2014 announced the merger of Esperanza and El Tesoro into a single company, Minera Centinela, and expects this to be legally completed during 4Q14	100	100	95	95	100	100	
Escondida (SX-EW)	BHP Billiton (57.5%), Rio Tinto Corp. (30%), Japan Escondida (12.5%)	Electrowinning	Operating	1998		Leach	Norte started Oct 05. Sulfide leach started June 2006. Mine life 2040. Investments to sustain production levels & increase life of mine: Organic Growth 1 Project replaces the Los Colorados concentrator with a new 152,000 tpd plant in mid 2015 increasing total production to 1.27 Mt, Oxide Leach Area Project ($0.2bn) a new dynamic leaching pad and mineral handling system in 2014 maintaining oxide leaching capacity.New desalination facility to ensure continued water supply to Escondida in 2017	320	320	300	300	300	300	

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Franke (SX-EW)	KGHM	Electrowinning	Operating	2009		Leach	Bought from Centenario Copper in April 2009. Started end 2Q09. Mine life 8Y. Problems with subcontractor in 2010. KGHM aquired Quadra Mining Ltd end 2011.	17	17	17	17	17	17	
Gabriela Mistral (Gaby) (SX-EW)	Codelco	Electrowinning	Operating	2008		Leach	Started April 2008. Cap 150ktpy Cu. Fase II expansion to 170ktpyto be reached in 2018. As of 1Jan 2013, Minera Gaby transformed in a new division of Codelco: División Gabriela Mistral	150	150	150	150	150	150	
Ivan/Zar (SX-EW)	Compania Minera Milpo	Electrowinning	Closed	1995	2013	Leach	In Jun 2012 announced an investment plan of US$170 million to upgrade the pan with the aim of reducing emissions by 33% until 2015. In Dec13, Chile's environmental court has rejected a request by public environment authority, SMA, for the temporary shutdown of Codelco's Ventanas division.	4	1					
La Cascada (Sagasca) (SX-EW)	Haldeman Mining Company	Electrowinning	Operating	1972		Leach	Was closed 2000. Restarted September 2004.	15	15	10	10	10	10	
Las Ventanas	Codelco	Electrolytic	Operating	1960		Anode	In Jun 2012 announced an investment plan of US$170 million to upgrade the pan with the aim of reducing emissions by 33% until 2015	400	400	400	400	400	400	
Lomas Bayas (SX-EW)	Glencore plc	Electrowinning	Operating	1998		Leach	Expansion to 75ktpy in 08. 4Q 2012 commissioned Lomas II mine life extension project to keep production at 75ktpy Cu as ore from the new Fortuna de Cobre pit supplement declining volumes from the original pit. Lomas II extends the life by a further 16 years to at least 2028 at existing production levels. Possible development of the copper sulphide deposit located below the current pit to expand prod to 140ktpy Cu in the form of concs & cathodes and extend mine life to 2039. Estimated start in 2017. The project will use of seawater for its operation.	75	75	75	75	75	75	
Los Bronces (SX-EW)	Anglo Amercian 75.5%, Mitsubishi Corp. 24.5%	Electrowinning	Operating	1925		Leach		46	50	50	50	50	50	
Mantos Blancos/ Santa Barbara (SX-EW)	Anglo American	Electrowinning	Operating	1995		Leach	During 2010, the life of Mantos Blancos was extended by five years to 2020	30	30	30	30	30	30	
Mantos de la Luna (SX-EW)	Izquierdo Menendez Group	Electrowinning	Operating	2006		Leach	Started July 2006.	20	20	20	15	15	15	
Mantoverde (SX-EW)	Anglo American	Electrowinning	Operating	1995	2019	Leach	Could start producing concentrates in 2019. The	60	60	60	60	60	60	
Michilla (SX-EW)	Antofagasta Plc (74.2%), Grupo Cueto (17.8%), Others (8%)	Electrowinning	Operating	1992	2015	Copper ore/leach	Lince OP closed Jan09 due to low Cu price (UG continued) and restarted early 2010. Michilla's board approved an extension to its mine life from 2012 to 2015 and studies are continuing in respect of a further possible extension to 2018.	38	38	38	30			
Puquios (SX-EW)	Minera Las Pascualas	Electrowinning	Planned			Leach	Possible cap 15 ktpy (formerly Las Pascualas). Natasa Mining Ltd decided in 2008 not to proceed with the project.						0	15

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Quebrada Blanca (SX-EW)	Teck Resources Ltd 76.5%, Inversiones Mineras SA 13.5%, Enami 10%	Electrowinning	Operating	1994		Leach	Transitioning from a high grade heap leach operation to a lower grade dump leach operation with gradual reduction towards end of cathode prod in early 2019. Potential for transition to concs for additional 20years. Production from the hypogene expected at approx 200ktpy Cu in concs. Earliest construction start is 2016, which would enable production at end of 2019. Due to shallower pit wall angles and associated mining constraints production lower in 2012-2014. Progressing in updating the permits for the existing facilities and life extension of the supergene operation. The social and environmental impact assessment to extend cathode production to 2020 was submitted on July 2014. The review, response, consultation and approval process is assumed to take 12 months.	70	60	50	50	40	40	
Radomiro Tomic (SX-EW)	Codelco	Electrowinning	Operating	1998		Leach	From 2002 to 2010 included in Codelco Norte as in Nov2010 split of Codelco Norte Division into two independent divisions: Chuquicamata and Radomiro Tomic. Decline in oxide production from 2018 onwards and could start producing concentrates from the sulphide reserves. See Radomiro Tomic (Sulphides) project.	430	400	400	400	400	400	
Salvador (Potrerillos) (refinery)	Codelco	Electrolytic	Operating			Anode		160	160	160	160	160	160	
Salvador (SX-EW)	Codelco	Electrowinning	Operating	1994		Leach	Originally due to close in 2011 was extended to 2021. Comprises the Inca UG mine & Campamento Antiguo and Damiana Norte OP mines. The San Antonio Oxido project expected to add 30ktpy cathode from mid-2015 during 24years but has been temporarily postponed and SX-EW production stopping in 2014.	25	16	10				
San Jose (Socavon) (SX-EW)	Sociedad Punta del Cobre (Pucobre)	Electrowinning	Operating	1994		Leach	Punta del Cobre and Manto de Cobre mines supply the San José Concentrator to produce around 100ktpy concentrates @ 29%Cu. Mina Venado Sur (open pit) supply the SX-EW plant that started in 1994 with a current capacity of around 10-12 ktpy cathode	12	12	12	12	12	12	
Sierra Miranda (SX-EW)	Sierra Miranda	Electrowinning	Closed	2007	2013	Leach		6	5					
Spence (SX-EW)	BHP Billiton	Electrowinning	Operating	2007		Leach	Combination of chemical and bacterial leaching for the oxide and sulfide ore. Mine life 2026. Spence Hypogene project could extend the mine life by over 50 years. Would result in the conversion of large hypogene resources into reserves. Could add approximately 150-200 ktpy of copper production for the first ten years post commissioning. No start up date announced.	190	190	190	170	170	170	
Taltal Oxidos (SX-EW)	Cia. Minera La Cenizas S.A.	Electrowinning	Operating	2011		Leach		5	5	10	10	10	10	
Tres Valles (SX-EW)	Inversiones Porto San Giorgio S.A (Vecchiola S.A)	Electrowinning	Operating	2010		Leach	Former Papomono. In Dec 2013 Vale sold it's 90% share to Inveriones Porto San Giorgio SA.	15	15	15	10	10	10	
Various Small mines (SX-EW)	ENAMI and Small Mine Owners	Electrowinning	Operating				Delivering to ENAMI.	38	38	38	60	60	60	

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Zaldivar (SX-EW)	Barrick Gold Corp.	Electrowinning	Operating	1995		Leach	A scoping study has been completed on the Zaldívar deep sulfides, and a prefeasibility study is underway with expected completion in 2014. This expansion opportunity has the potential to significantly increase annual mine production starting as early as 2019, increase copper reserves/resources and extend mine life.	140	130	130	120	120	120	
China		**Refinery**	**Operating**					**6,188**	**7,268**	**8,088**	**8,338**	**8,338**	**8,338**	
China		**Refinery**	**Developing**							**200**	**400**	**400**	**400**	**400**
China		**Refinery**	**Planned**											
China		**Refinery**	**Closed**					**30**	**30**					
China		**Refinery**	**Total Status**					**6,218**	**7,298**	**8,288**	**8,738**	**8,738**	**8,738**	**400**
Baiyin	Baiyin Nonferrous Metals	Electrolytic	Operating	1959		Anode	New refinery with 200ktpy started in Oct 2009. Phase one comissioned in 2011	200	200	400	400	400	400	
Changzhou Copper	Local Government	Electrolytic	Operating	1996		Blister		40	40	40	40	40	40	
Chifeng Yutong Jinfeng	JV (Chifeng, Yunan Copper)	Electrolytic	Operating	2007			Expansion in Jul 2008.	100	100	100	100	100	100	
Chizhou (refinery)	Local Government	Electrolytic	Operating			Anode		45	45	45	45	45	45	
Datong	Tianjin Datong Copper Industry Co., Ltd.	Electrolytic	Closed		2011	Scrap, Blister	Replaced by the new Tianjin refinery.							
Daye/ Hubei (refinery)	Daye Non-Ferrous Metals Co.	Electrolytic	Operating			Blister	New 300ktpy refinery comissioned in Oct 2012.	400	600	600	600	600	600	
Fuchunjiang (refinery)	Local Government	Electrolytic	Operating			Anode, Scrap		120	120	120	120	120	120	
Guangzhou Zhujiang	Local Government	Electrolytic	Closed		2013	Scrap		30	30					
Guangxi Wuzhou	Guangxi Non-Ferrous Metal Group	Electrolytic	Operating	2012		Anode, Scrap	Commissioned May 2012	200	300	300	300	300	300	
Guixi	Jiangxi Copper Corporation	Electrolytic	Operating	1985		Anode, Scrap	New smelting line and new electrolytic refinery in 2007. Expansion in 2008.	900	900	900	900	900	900	
Huludao (refinery)	Huludao Zinc Corp.	Electrolytic	Operating	2013		Anode	Closed the old cell and new line with 150kpty capacity installed		150	150	150	150	150	
Jinchang (Tongling II) (refinery)	Tongling Nonferrous Metals Corp. (52%), Sharpline International (13%)	Electrolytic	Operating			Anode		200	200	200	200	200	200	
Jinchuan	Jinchuan Non Ferrous Co.	Electrolytic	Operating			Anode, Scrap	Expansion to 650ktpy.	650	650	650	650	650	650	
Jinchuan (Fangchenggang refinery)	Jinchuan Non-Ferrous Metal Co.	Electrolytic	Developing	2014		Anode, Scrap	Smelter trial period started Nov 2013. In Feb 2014 Trafigura announced interest to buy 30% of Jinchuan Group's copper smelter.			200	400	400	400	400
Jinjian	Jinjiang Copper Co.	Electrolytic	Operating			Anode	Expansion to 120kt in 2012	120	120	120	120	120	120	
Jinlong (Tongdu) (refinery)	Tongling NonFerrous Metal Corp. 52 %, Sharpline International 13%, Sumitomo Corp. 7.5%, Itochu Corp. 7.5%	Electrolytic	Operating	1950		Anode		400	400	400	400	400	400	
Jinguan (refinery)	Tongling Non-Ferrous Metals Group	Electrolytic	Operating	2013		Anode			400	400	400	400	400	
Jiangxi Copper Qingyuan	Jiangxi Copper Corporation	Electrolytic	Operating			Anode, Scrap		100	100	100	100	100	100	
Jintian	Ningbo Jintian Copper Corp.	Electrolytic	Operating			Scrap		120	120	120	120	120	120	
Lihua (refinery)	Lihua International Inc.	Fire Refining	Operating	2009		Scrap	Started in 2009, 25kt and expanded to 50kt in 2010.	50	50	50	50	50	50	
Meizhou Jinyan	Local Government	Fire Refining/ Electric	Operating			Blister, Scrap		20	20	20	20	20	20	

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Table 3: WORLD COPPER REFINERIES PRODUCTION CAPACITY 2012 To 2017

Thousand metric tonnes copper

Refineries	Operator/Owner(s)	Process	Status	Start Up	Date of Closure	Raw Materials	Short Remarks	2012	2013	2014	2015	2016	2017	Project Cap.
Shandong Fangyuan (refinery)	Dongying, Shandong	Electrolytic	Operating			anode	Expansion to 400ktpy in April 2012	300	400	400	400	400	400	
Shandong Jinshen	Linyin, Shandong	Electrolytic	Operating			Anode, Scrap		100	100	100	100	100	100	
Shandong Luxiang	Luxiang Copper Industry Group	Electrolytic	Operating	1992		Scrap		5	5	5	5	5	5	
Shanghai Dachang	Shanghai Dachang Copper	Electrolytic	Operating	1998		Scrap, Blister	Plans to double capacity.	65	65	65	65	65	65	
Shanghai Xinye	Shanghai Xinye Copper Co. (Shanghai Non-ferrous Metals Ltd.)	Electrolytic	Operating	1913		Anode		60	60	60	60	60	60	
SX-EW plants (various)		Electrowinning	Operating			Leach		100	100	100	100	100	100	
Taichang	Taichang Copper Group	Electrolytic	Operating			Anode, Scrap		35	35	35	35	35	35	
Tianjing	Tianjin Nonferrous Metals Groups, Western Mining Co.	Electrolytic	Operating	2011		Scrap	Construction started in Jun09. Capacity 200ktpy.	200	200	200	200	200	200	
Tongling (new refinery)	Tongling Non-Ferrous Metals Group	Electrolytic	Operating	2014		Anode	Capacity 400ktpy. Started early 2014			350	400	400	400	
Wuhu	Local Government	Electrolytic	Operating	1958		Blister, Scrap		45	45	45	45	45	45	
Wujin	Local Township	Electrolytic	Operating			Scrap		30	30	30	30	30	30	
Xiangguang copper (refinery)	Yanggu Xiangguang Copper Co	Electrolytic	Operating	2007		Anode	Norddeutsche Affinerie pulled out in 2006. Phase 2 construction to increase to 400ktpy started Jun09 and comissioned in June 2011.	400	400	400	400	400	400	
Yantai Penghui (refinery)	Yantai Non-Ferrous Metals Co.,Ltd 49.8%, Minmetals 42%, China Non-Ferrous New Metal Co.,Ltd 8.2%	Electrolytic	Operating	1975		Anode	Planned expantion to 300ktpy.	100	100	100	300	300	300	
Yubei Copper Fabricating (refinery)	Local Government	Electrolytic	Operating			Anode		10	10	10	10	10	10	
Yulong (SX-EW)	Quinghai Western Mining 41%, Fujian Zijin Mining 39%	Electrowinning	Operating	2009		Leach		3	3	3	3	3	3	
Yunnan Copper	Yunnan Copper Industry Group (64.8%)	Electrolytic	Operating			Anode	In Jan08 Chinalco acquired 49% of Yunnan Copper Co. 200kt ISA project started in 2010 and 100kt old capacity was shut down.	500	500	500	500	500	500	
Yunan Tin (refinery)	Yunan Tin (refinery)	Electrolytic	Operating	2012		Anode	Started 2012	50	100	100	100	100	100	
Zhangjiagang	Tongling Non Ferrous Co.	Electrolytic	Operating	1998		Scrap	Blister from Jinchang smelter.	200	200	300	300	300	300	
Zhongtiaoshan (Houma) (refinery)	Zhongtiaoshan Nonferrous Metals Company	Electrolytic	Operating			Anode	Expansion to 250ktpy	50	80	250	250	250	250	
Zhongtiaoshan (Yanqu)	Zhongtiaoshan Nonferrous Metals Corp.	Electrolytic	Operating	1970		Anode		100	100	100	100	100	100	
Zijin	Zijin Mining Company 50%, Minxi Xinghang 50%	Electrolytic	Operating	2012		Anode	Started Nov 2011. Capacity 200ktpy.	150	200	200	200	200	200	
Zijinshan (SX-EW)	Zijing Gold & Copper	Electrowinning	Operating	2005		Leach		20	20	20	20	20	20	

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Table 3: WORLD COPPER REFINERIES PRODUCTION CAPACITY 2012 To 2017

Thousand metric tonnes copper

Refineries	Operator/Owner(s)	Process	Status	Start Up	Date of Closure	Raw Materials	Short Remarks	2012	2013	2014	2015	2016	2017	Project Cap.
Congo		**Refinery**	**Operating**					**597**	**739**	**859**	**988**	**1,078**	**1,088**	
Congo		**Refinery**	**Developing**							**40**	**90**	**90**	**90**	**90**
Congo		**Refinery**	**Planned**										**0**	**230**
Congo		**Refinery**	**Closed**											
Congo		**Refinery**	**Total Status**					**597**	**739**	**899**	**1,078**	**1,168**	**1,178**	**320**
Deziwa & Ecaille C (SX-EW)	Gecamines	Electrowinning	Planned				Gecamines ended joint venture with Copperbelt Minerals end 2012 and gained 100% control in the project. Gecamines plans to build a 200ktpy operation in two phases with both mines that combined have estimated reserves of 5MT copper and 400Kt Co. 1st phase is for a 80ktpy copper cathode plant and 8ktpy Co, for a mine life of 20Y						0	200
Etoile (SX-EW)	Chemaf (100% Shalina Resources) 99.04%, Shiraz Virji and Abbas Virji 0.96%	Electrowinning	Operating	2002		Leach	Etoile was mined by Gécamines until the 1960s and artisanal miners until 2000, when the Ruashi-Etoile concession was divided and offered to private investors. Chemaf was granted the rights to Etoile. Started small-scale mining in 2002 In 2007 bought the Mount Gordon Cu SX/EW and re-assembled it. Capacity of Usoke SX-EW plant is 31ktpy cathode. Mining at Mufunta deposit to start in 2015 and capacity could be expanded to 50ktpy. Currently processing oxide ore but when sulphide ore will be reached, using pyro-metallurgical techniques, the sulphide concentrate (from the flotation plant Q1 2015) will be converted to oxides (in the roaster Q2 2015) and treated at the Usoke plant.	24	31	31	35	40	50	
Huachin (SX-EW)	Sino-Metals Leach Zambia Ltd 30%	Electrowinning	Operating	2012		Leach	Hydrometallurgy plant started Feb 2012. Cap 10ktpy.	6	10	10	10	10	10	
Kamoto (SX-EW)	Katanga Mining Ltd (74.4% Glencore plc) 75%, Gecamines 25%	Electrowinning	Operating	2007	2040		Ore leached at Luilu, therefore not counted here						0	
Kinsevere Phase 2 (SX-EW)	Minmetals	Electrowinning	Operating	2011		Leach	60ktpy SX-EW plant to treat reject products from current operation put on hold Nov 08. Finance Agreement with Trafigra in Aug09 used to recommence construction. Startup 2Q2011. Operational 14Y. Minmetals aquired Anvil Mining in 2012	37	63	63	63	63	63	
Kipoi (SX-EW)	Tiger Resources Ltd	Electrowinning	Operating	2014	2025	Leach	Hosts five copper deposits: Kipoi Central, Kipoi North, Kileba, Judeira and Kaminafitwe. Stage 1 with HMS plant started April 2011 ending early 2015. A Stage 2, SXEW plant started May 2014 capable of producing 538 Mt cathode over 11 years, processing ore reserves from the Kipoi Central, Kileba and Kipoi North deposits and reject floats, slimes and medium grade ore stockpiles from the Stage 1 HMS operation. Ore from Judeira and other deposits within the Kipoi Project area, as well as the Lupoto Project, will also be processed during the Stage 2 operations.			10	25	50	50	

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Table 3: WORLD COPPER REFINERIES PRODUCTION CAPACITY 2012 To 2017

Thousand metric tonnes copper

Refineries	Operator/Owner(s)	Process	Status	Start Up	Date of Closure	Raw Materials	Short Remarks	2012	2013	2014	2015	2016	2017	Project Cap.
Kolwezi Tailings (SX-EW)	Eurasian Natural Resources Corporation PLC 70%, DRC Government, Gécamines and Sociéte Immobiliére du Congo 30%.	Electrowinning	Developing	2014		Leach	RTR - Roan Tailings and Reclamation Project (formerly known as Kolwesi Tailings) with 1.7Mt Cu, 363Kt Co. Expected capacity 70 ktpy Cu. Mine life 22 yrs. Target prod Q210 but construction stopped Sep09 as licence was revoked by gov. Aug10 ENRC acquire 50.5% in Camrose that includes stake in the project. First Quantum disputes decision. On February 2010, commenced international arbitration. In Jan 2012 companies announced agreement, ENRC acquired project. Production to start H2 2014.			30	70	70	70	70
KOV (SX-EW)	Katanga Mining Ltd (74.4% Glencore plc) 75%, Gecamines 25%	Electrowinning	Operating	2014			Included in Luilu. This new plant along with Luilu will enable KCC to increase copper production capacity to 308kt.						0	
Luilu (leach plant)	Katanga Mining Ltd (74.4% Glencore plc) 75%, Gecamines 25%	Electrowinning	Operating	2007			Luilu refinery plant leaches Kamoto ores. Started Jul07. Expansion in 5 phases to 310kt by end 2014 with phase 5 currently under construction.	70	80	140	250	310	310	
Luita (SX-EW)	CAMEC (ENRC)	Electrowinning	Operating	2007		Leach	3 facilities: Luita SX/EW plant, Kakanda concentrator, Kambove acid plant. Put on C&M on Nov08. Restarted Apr09. Acquisition of CAMEC by ENRC in Nov09. New solvent extraction plant in 2013	100	100	100	100	100	100	
Mabende (SX-EW)	Sino-Metals Leach Zambia Ltd 60%, Congo Huachin 40%	Electrowinning	Developing	2014		Leach	Treats ore from the Mabende mine. Capacity 20ktpy cathode. Starts 2014.			10	20	20	20	20
Mutanda (SX-EW)	Glencore plc (54.5% indirect interest), High Grade Minerals S.A. 14.5%, Rowny Assets Ltd (Fleurette Properties Ltd) 31%	Electrowinning	Operating	2010	2024	Leach	Mutanda & Kansuki merged in Jul13. Mutanda mine life +20 years. Ore body in the form of sulphides lies below these reserves and are expected to extend life. 20Kt SXEW plant in 4Q10, 40Kt SXEW plant mid 2011 and expansion to 110kt in 1Q12 and with Kansuki expansion to 200ktpy Cu Dec 2013. Central OP (on hold), East OP and Central NW OP being mined. Three pits expected to consolidate into one large open pit by 2018.	90	150	200	200	200	200	
Ruashi II (SX-EW)	Metorex (Jinchuan Group) 80%, Gecamines 20%	Electrowinning	Operating	2008		Concs.	Mining of Ruashi open pit, expansion of concentrator and new SX-EW plant. Mine life 20+ years. Startup was delayed until Nov 08.	45	45	45	45	45	45	
Shituru Refinery	La Générale des Carrières et des Mines - Gecamines	Fire Refining	Operating	1928		Electrowon & black copper	Initial capacity was 165kt but current risidual capacity is 65kt	65	65	65	65	65	65	
Tenke Fungurume (SX-EW)	Freeport-McMoRan Copper & Gold Inc. 56%, Lundin Mining. 24%, Gecamines 20%	Electrowinning	Operating	2009	2050+	Leach	Mine life 40 years. Started March 2009 with capacity of 115ktpy Cu and over 8ktpy Co in hydroxide. With subsequent debottlenecking and plant upgrades capacity increase to 132ktpy and 11kt Co. Phase 2 expansion to around 195ktpy Cu and 15kt Co completed in 2013. Sulphide development being evaluated. Further expansion planned with the aim of achieving production in excess of 400ktpy Cu. This is one of several stages of development with objective of ultimately producing around 500ktpy Cu mining multiple deposits concession-wide. A second sulphuric acid plant is expected to be completed in 2016.	160	195	195	195	195	195	

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Table 3: WORLD COPPER REFINERIES PRODUCTION CAPACITY 2012 To 2017

Thousand metric tonnes copper

Refineries	Operator/Owner(s)	Process	Status	Start Up	Date of Closure	Raw Materials	Short Remarks	2012	2013	2014	2015	2016	2017	Project Cap.
Cyprus		**Refinery**	**Operating**					**6**	**6**	**6**	**6**	**6**	**6**	
Tamasos (Skouriotissa) (SX-EW)	Hellenic Copper Mines	Electrowinning	Operating	1996		Leach	Closed Dec-04 and reopened Jun-06.	6	6	6	6	6	6	
Egypt		**Refinery**	**Operating**					**4**	**4**	**4**	**4**	**4**	**4**	
Egypt		**Refinery**	**Planned**										**0**	**300**
Egypt		**Refinery**	**Total Status**					**4**	**4**	**4**	**4**	**4**	**4**	**300**
General Metals/ Cairo	General Metals Co. (GEMET)	Fire Refining (S)	Operating			Scrap		4	4	4	4	4	4	
Red Sea Copper (refinery)	El Sewedy Cables 74%, Glencore plc 26%	Electrolytic	Planned				Expected cap of 300ktpy Cu. Project deferred.						0	300
Finland		**Refinery**	**Operating**					**163**	**163**	**163**	**163**	**163**	**163**	
Kokkola	Freeport-McMoRan Copper & Gold Inc.	Electrowinning	Operating	2002		Leach	Treats ores from abroad. Acquired by Freeport-McMoRan Copper & Gold Inc. in 2013	10	10	10	10	10	10	
Pori	Boliden	Electrolytic	Operating	1949		Anode	Expansion from 126 to 153,000 tpy by early 2008.	153	153	153	153	153	153	
Germany		**Refinery**	**Operating**					**735**	**735**	**756**	**756**	**756**	**756**	
Hamburg (refinery)	Aurubis	Electrolytic	Operating	1989		Anode	Norddeutsche Affinerie AG changed name to Aurubis. In 2013, expansion in concs throughput capacity from 1.1MT to 1.25Mt, increase in cathode output to 416ktpy and improvement in thankhouse efficiency	395	395	416	416	416	416	
Huettenwerke Kayser	Aurubis (98%)	Electrolytic (S)	Operating	1913		Anode	Mount Isa Process. Norddeutsche Affinerie AG changed name to Aurubis.	180	180	180	180	180	180	
Osnabruck	KME Germany GmbH&Co.KG	Fire Refining (S)	Operating			Scrap	Mostly scrap, billet and cake.	160	160	160	160	160	160	
India		**Refinery**	**Operating**					**948**	**948**	**948**	**948**	**948**	**948**	
India		**Refinery**	**Closed**											
India		**Refinery**	**Total Status**					**948**	**948**	**948**	**948**	**948**	**948**	
Birla	Birla Group Hidalco	Electrolytic	Operating	1998		Anode	Expansion to 500,000 tpy in Jul05.	500	500	500	500	500	500	
Ghatsila	Hindustan Copper Ltd. (HCL)	Electrolytic	Operating			Anode		17	17	17	17	17	17	
Jhagadia (Gujarat)	Jhagadia Copper Ltd (formerly Swill Ltd)	Electrolytic (S)	Closed	2004	2010	Scrap	Started 2004. Closed 2010.							
Khetri Refinery	Hindustan Copper Ltd. (HCL)	Electrolytic	Operating	1975		Anode	On care and maintenence for economic reasons	31 on C&M	31	31	31	31	31	
Sterlite Refinery	Vedanta	Electrolytic	Operating	1996		Anode	Includes new refinery at Tuticorin opened mid 2004. 400ktpa expansion project was to be commissioned in 2011 but EC awaited	400	400	400	400	400	400	

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Thousand metric tonnes copper

Refineries	Operator/Owner(s)	Process	Status	Start Up	Date of Closure	Raw Materials	Short Remarks	2012	2013	2014	2015	2016	2017	Project Cap.
Indonesia		**Refinery**	**Operating**					**300**	**300**	**302**	**310**	**323**	**328**	
Indonesia		**Refinery**	**Planned**										**0**	**520**
Indonesia		**Refinery**	**Total Status**					**300**	**300**	**302**	**310**	**323**	**328**	**520**
Bontang (refinery)	Pt Nusantara Smelting Corp,. Norilsk Nickel	Electrolytic	Planned	2019			Capacity of 200ktpy cathode, with by-products in the form of 400tpy anode slime and 600ktpy sulfuric acid, and slags and gypsum. Located in the Innovation-Based Industrial Area, North Gresik, within the Sidayu Gresik Industrial Zone. Location intended to ensure that the sulfuric acid produced can be optimized as is adjacent to the Dolomite mine, using it for leaching dolomite to make Kiesrite Fertilizer required for the palm plantations. Startup expected for early 2019. Feasibility study by mid 2015. In 2013 signed Conditional Purchase Agreement of Concentrate with PTNNT (Batu Hijau) and PT Freeport Indonesia (Grasberg)						0	200
Gresik (refinery)	Mitsubishi (75%), Freeport (25%)	Electrolytic	Operating	1998		Anode	Expansion to 275 ktpy in Jul 06 and 300 ktpy in 3Q 09.	300	300	300	300	300	300	
Indovasi (refinery)	PT Indovasi Mineral Indonesia	Electrolytic	Planned	2018		Anode	One of third copper refineries projects to be developped in Indonesia to comply with new ore exports ban law. To be located either in Tuban or Gresik, in East Java. In 2013 signed Conditional Purchase Agreement of Concentrate with PTNNT (Batu Hijau) and PT Freeport Indonesia (Grasberg). Capacity 200ktpy						0	200
Maros (refinery)	PT Indosmelt	Electrolytic	Planned	2018		Anode	Construction starts 2014 and to be complete in 2017 with production in 2018. The plant is located in Bontoala Sub-district, Maros Regency, North Sulawesi Province. Planned annual production of 120kt of copper cathodes, 20t of gold, and by-products of 300kt of slags as raw materials for cement factories, 200kt of anode slags for gold refinery industry, and sulfur acid as raw materials for fertilizer industry. In 2013 signed a Conditional Purchase Agreement of Concentrate with PTNNT (Batu Hijau) and PT Freeport Indonesia (Grasberg)						0	120
Wetar (SX-EW)	Finders Resources Ltd 85%	Electrowinning	Operating	2008, 2014			Demonstration plant started Dec 08 and temporarily shut down Feb 2011 pending final mining permits. Bought SX-EW pant from Whim Creek. The previous two stage expansion is superseded by a simpler construction plan involving the expansion of the existing Whim Creek SX-EW plant to 25ktpy. The demonstration plant was upgraded from 1.8ktpy to 3ktpy and started April 2014. SW-EW plant to start 2H2015. 8.9 Mt at 2.4% Cu for approx. 210kt contained copper			2	10	23	28	

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Thousand metric tonnes copper

Refineries	Operator/Owner(s)	Process	Status	Start Up	Date of Closure	Raw Materials	Short Remarks	2012	2013	2014	2015	2016	2017	Project Cap.
Iran		**Refinery**	**Operating**					**259**	**259**	**259**	**299**	**299**	**299**	
Iran		**Refinery**	**Developing**									**3**	**5**	**8**
Iran		**Refinery**	**Planned**									**70**	**250**	**400**
Iran		**Refinery**	**Total Status**					**259**	**259**	**259**	**299**	**372**	**554**	**408**
Khatoon Abad	National Iranian Copper Industry Co.	Electrolytic	Planned	2016		Anode	Startup was expected in 2013 but delayed to 2016. Refinery with 100ktpy cathode capacity and project to be completed in 2017 with total capacity of 200ktpy					70	150	200
Miduk (SX-EW)	National Iranian Copper Industry Co.	Electrowinning	Operating	2012		Leach	Production started May 2012.	5	5	5	5	5	5	
Sungun (rrefinery)	National Iranian Copper Industry Co.	Electrolytic	Planned	2017		Anode	Refinery with 200ktpy refined copper production. Startup was expected 2013 but delayed to 2017						100	200
Sarchesmeh (SX-EW)	National Iranian Copper Industry Co.	Electrowinning	Operating	1997		Leach		14	14	14	14	14	14	
Sarchesmeh Copper Complex	National Iranian Copper Industry Co.	Electrolytic	Operating	1983		Anode	Expansion to 240ktpy in 2010 and to 280ktpy in 2015.	240	240	240	280	280	280	
Nicico other SX-EW Plants	National Iranian Copper Industry Co.	Electrowinning	Developing	2016		Leach	Includes Sungun Bioleaching plant, cap. 5ktpy Cu that starts in 2016 and the planned Taft Copper Complex 3ktpy Cu SX-EW plant. Total agregated capacity 8ktpy Cu					3	5	8
Israel		**Refinery**	**Developing**							**2**	**15**	**22**	**22**	**22**
Arava Mines (SX-EW)	AHMSA Steel Israel Ltd (Altos Hornos de Mexico)	Electrowinning	Developing	2014		Leach	Cap 22ktpy. Delayed to end 2014			2	15	22	22	22
Italy		**Refinery**	**Operating**					**24**	**24**	**24**	**24**	**24**	**24**	
Italy		**Refinery**	**Closed**											
Italy		**Refinery**	**Total Status**					**24**	**24**	**24**	**24**	**24**	**24**	
Fornaci di Barga Lucca	Europa Metalli SpA	Fire Refining (S)	Operating			Scrap		24	24	24	24	24	24	
Pieve Vergonte (Novara)	Sitindustrie SpA	Fire Refining (S)	Closed		2009	Scrap	Closed July 2009							
Japan		**Refinery**	**Operating**					**1,719**	**1,706**	**1,706**	**1,706**	**1,706**	**1,706**	
Hitachi/ Ibaragi (refinery)	Pan Pacific Copper Co. Ltd	Electrolytic	Operating	1908		Anode		217	217	217	217	217	217	
Kosaka/ Akita	Dowa Metals & Mining Co. Ltd.	Electrolytic	Operating	1902		Leach		25	12	12	12	12	12	
Naoshima/ Kagawa	Mitsubishi Materials Corp.	Electrolytic	Operating	1917		Anode		234	234	234	234	234	234	
Onahama Fukushima	Mitsubishi Materials Corp. (49.29%), Dowa Metals & Mining Co. Ltd.(31.15%), Furukawa Metals & Resources Co. Ltd. (12.67%)	Electrolytic	Operating	1965		Anode		300	300	300	300	300	300	
Saganoseki/ Ooita	Pan Pacific Copper Co. Ltd	Electrolytic	Operating	1916		Anode		233	233	233	233	233	233	
Tamano/ Okayama	Hibi Kyodo Smelting Co. Ltd.	Electrolytic	Operating	1964		Anode		260	260	260	260	260	260	

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Refineries	Operator/Owner(s)	Process	Status	Start Up	Date of Closure	Raw Materials	Short Remarks	2012	2013	2014	2015	2016	2017	Project Cap.
Toyo/Niihama (Besshi)	Sumitomo Metal Mining Co. Ltd.	Electrolytic	Operating	1919		Anode		450	450	450	450	450	450	
Kazakhstan		**Refinery**	**Operating**					**513**	**518**	**520**	**522**	**524**	**527**	
Kazakhstan		**Refinery**	**Developing**								**1**	**15**	**15**	**15**
Kazakhstan		**Refinery**	**Planned**										**0**	**13**
Kazakhstan		**Refinery**	**Total Status**					**513**	**518**	**520**	**523**	**539**	**542**	**28**
Aktogay (SX-EW)	Kazakhmys PLC	Electrowinning	Developing	2015	2026	Leach	Oxide zone 123 MT of ore @ 0.37% Cu, Sulphide zone 2064 MT of ore @ 0.33% Cu. Feasibility in 2012. Started construction in 2013. First oxide copper cathode production in 4Q2015 expected to operate for 11 years @ avg 15 ktpy. First sulphide copper in concentrate production by 2017 to average 90 ktpy in the first 10 years with a peak of approx 100 kt in 2019.				1	15	15	15
Balkash Refinery	Kazakhmys PLC	Electrolytic	Operating	1952		Anode	In July 2014 Kazakhmys announced that will split itself in two with the listed entity keeping the more profitable East Region mines, the Bozymchak, Aktogay and Bozshakol mines and the Koksay project. The remaining assets including the Zhezkazgan and Central region mines and smelters, coal mines and captive power stations would be privatised to Cuprum Holding.	220	220	220	220	220	220	
Benkala (SX-EW)	Frontier Mining Ltd 100% (KazCopper LLP)	Electrowinning	Operating	2012		Leach	Estimated 2.2 million tonnes of contained Copper. Capacity 7ktpy. Production started Aug 2012. Bankable Feasibility Study underway for development of Benkala sulphide resource.	1	3	5	7	7	7	
Karchiga (SX-EW)	Orsu Metals Corp. (94.75%)	Electrowinning	Planned	2018		Leach	Open pit. Concentrate production expected to start early 2015 @38ktpy Cu (conc grade 28%) and SXEW production to start in 2018 @12.7kt but might be delayed as of July 2014 company continuing to seek finance LOM 11.5 years.						0	13
Kounrad Mine refinery (SX-EW)	Central Asia Metals Plc 60%, Saryarka (gov) 40%	Electrowinning	Operating	2012		Leach	Kounrad mine operated from 1936 to 2005. Large low-grade wast dump dposit acumulated over 70 years of open-pit mining operations. Capacity 10ktpy cathodes plant started in Apr2012. Plans to expand capacity to 15ktpy in 2016.	7	10	10	10	12	15	
Ust-Kamenogorsk	Kazzinc (Glencore plc 69.61%, Verny Capital JSC 30.39%)	Electrolytic	Operating	2010		Anode	New smelter and refinery. Started production in Sep11. Capacity to treat 370ktpy of copper concentrate and produce 70ktpy copper cathodes, with long-term potential to increase capacity to 87.5ktpy copper cathodes.	70	70	70	70	70	70	
Zhezkazgan Refinery	Kazakhmys PLC	Electrolytic	Operating	1971		Anode	Expanded in 2004. In July 2014 Kazakhmys announced that will split itself in two with the listed entity keeping the more profitable East Region mines, the Bozymchak, Aktogay and Bozshakol mines and the Koksay project. The remaining assets including the Zhezkazgan and Central region mines and smelters, coal mines and captive power stations would be privatised to Cuprum Holding.	215	215	215	215	215	215	

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Thousand metric tonnes copper

Refineries	Operator/Owner(s)	Process	Status	Start Up	Date of Closure	Raw Materials	Short Remarks	2012	2013	2014	2015	2016	2017	Project Cap.
Korea Republic		**Refinery**	**Operating**					**625**	**650**	**730**	**730**	**730**	**730**	
Korea Republic		**Refinery**	**Closed**											
Korea Republic		**Refinery**	**Total Status**					**625**	**650**	**730**	**730**	**730**	**730**	
Changhang Refinery	LS-Nikko Co. (LS, Nippon Mining)	Electrolytic	Closed	1936	2008	Anode, Scrap	Shut down in Jan 08.							
Onsan (refinery)	Korea Zinc	Electrolytic	Operating					25	50	50	50	50	50	
Onsan Refinery I	LS-Nikko Co. (LS, Nippon Mining)	Electrolytic	Operating	1979		Anode, Scrap	Expansion in 2014.	360	360	440	440	440	440	
Onsan Refinery II	LS-Nikko Co. (LS, Nippon Mining)	Electrolytic	Operating	1998		Anode, Scrap		240	240	240	240	240	240	
Laos		**Refinery**	**Operating**					**90**	**90**	**90**	**90**	**90**	**90**	
Sepon (SX-EW)	Minmetals	Electrowinning	Operating	2005		Leach	Started Mar05. Expansion to 85ktpy in 2012. OZ Minerals sold asset to Minmetals in Jun09.	90	90	90	90	90	90	
Macedonia		**Refinery**	**Operating**					**3**	**3**	**3**	**3**	**3**	**3**	
Bucim/Cukar/Vrsnik (SX-EW plant)	Solway Industries Ltd	Electrowinning	Operating	2011		Leach	Privatized in 01, bankrupted in 03, reopened in 05 with new owners. SX-EW plant started end 2011.	3	3	3	3	3	3	
Mexico		**Refinery**	**Operating**					**490**	**495**	**510**	**590**	**615**	**615**	
Mexico		**Refinery**	**Developing**							**10**	**40**	**66**	**95**	**95**
Mexico		**Refinery**	**Closed**					**20**						
Mexico		**Refinery**	**Planned**										**100**	**391**
Mexico		**Refinery**	**Total Status**					**510**	**495**	**520**	**630**	**681**	**810**	**486**
Boleo (SX-EW)	Baja Mining Corp 49%, Korea Resources Group 51%	Electrowinning	Developing	2014		Leach	Cap of 56 ktpy Cu in first 6 years then 38 ktpy. Mine life 23 years. Construction was delayed due to global financial crisis.(Consortium: Korea Resources Corp., LS-Nikko Copper Inc., Hyundai Hysco Co. Ltd., SK Networks Co. Ltd. and Iljin Materials Co. Ltd). First copper production in Sep 2014 and cobalt/zinc production in Nov 2014.			10	40	56	56	56
Buenavista del Cobre (former Cananea) (SX-EW)	Grupo Mexico	Electrowinning	Operating	1980		Leach	Former name was Cananea. Restarted Oct 2010 after more than 3 years strike. Expansion by approximately 175% from 180 to 495ktpy Cu by 2016: new 188ktpy Cu concentrator in 1H2015 and 2 additional leaching plants of 82kypy Cu total cap. Initially plant III of 32Kt in 4Q 2012 & plant IV of 50Kt in 2Q 2015 but decided to use equipment originally purchased for Tia Maria project allowing to cut delivery time. New SXEW III plant started June 14. Full capacity is expected to be reached in 4Q14, at 120ktpy cathode	55	55	70	150	175	175	
El Pilar (SX-EW)	Mercator Minerals	Electrowinning	Developing	2016	2029	Leach	Mine life of 13 years. Higher average production of 39kt Cu cathode for the first 5 years with a life-of-mine average production of 36ktCu. Mercator Minerals Ltd. and Intergeo MMC Ltd (Onexim Group) intend to merge with final decision to be taken in March 2014.					10	39	39
Empalme (refinery)	Southern Copper Corp.	Electrolytic	Planned	2017		Anode	Project announced in Aug 2010 and related to the expansion of Cananea. Capacity of 350ktpy. Delayed from 2016 to 2017.						100	350

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La Balsa (SX-EW)	Binhai Harbour Group HK Co., Limited	Electrowinning	Planned			Leach	Project43-101 Resource Study complete. Economic Scoping Study complete. Feasibility study suspended in May 2012 pending additional funding . Cap 10ktpy. Mine life 7Y. In July 2013 sold La Balsa project to Binhai Harbour Group HK Co., Limited						0	10
La Caridad (refinery)	Mexicana de Cobre S. A. (Grupo Mexico)	Electrolytic	Operating	1997		Anode, Scrap	New Refinery built in 1997	300	300	300	300	300	300	
La Caridad (SX-EW)	Mexicana de Cobre S. A. (Grupo Mexico)	Electrowinning	Operating	1995		Leach		25	25	25	25	25	25	
Luz del Cobre (SX-EW)	Red Tiger Mining Inc.	Electrowinning	Operating	2012		Leach	Mine life 6Y. Develop. was suspended in Oct08, 4 months before start-up as available funding was insufficient to complete the development/plant construction. Production started in May 2012	3	8	8	8	8	8	
Milpillas (SX-EW)	Industrias Penoles SA	Electrowinning	Operating	2006		Leach	Started August 2006. Mine life 12 years.	55	55	55	55	55	55	
Minera Maria (SX-EW)	Minera Frisco	Electrowinning	Operating	2003		Leach	Closed underground operations in 1998 and reopened open pit in July 2003.	20	20	20	20	20	20	
Piedras Verdes (SX-EW)	Frontera Copper	Electrowinning	Operating	2006		Leach	Started Sep 2006. Mine life 18Y. Mining suspended Nov08 due to weak market conditions. In May09, Frontera was acquired by 0839073 BC Ltd., a wholly owned subsidiary of Invecture Group, S.A. de C.V. Restarted Oct09.	32	32	32	32	32	32	
Refineria Mexico/ D F	Cobre de Mexico S.A.	Electrolytic	Closed	1943	2012	Anode	Closed March 2012	20						
San Javier (Cerro Verde area) (SX-EW)	Constellation Copper Corp.	Electrowinning	Planned			Leach	Possible prod of 22 ktpy cathode. Mine life 9 yrs. Company bankrupt. In Mar 2014 Benz Capital Corp. entered into non-biding proposal to buy 100% interest in the project and to start a feasibility study by end 2014.						0	22
Terrazas (Cerro Verdo area) (SX-EW)	Constellation Copper Corp.	Electrowinning	Planned			Leach	Possible capacity of 9 ktpy of cathode. Company bankrupt						0	9
Mongolia		**Refinery**	**Operating**					**3**	**3**	**3**	**3**	**3**	**3**	
Mongolia		**Refinery**	**Planned**										**0**	**25**
Mongolia		**Refinery**	**Total Status**					**3**	**3**	**3**	**3**	**3**	**3**	**25**
Erdenet (SX-EW)	Erdenet Mining & Concentrating (EMC)	Electrowinning	Operating			Leach	Operated by Erdmin Co., a Mongolian and American Joint Venture.	3	3	3	3	3	3	
Erdenetin-Ovoo (SX-EW)	Samsung 51%, Erdenet 49%	Electrowinning	Planned				Based on oxide and secondary sulfide ores. Capacity 25,000t cathode.						0	25
Myanmar		**Refinery**	**Operating**					**20**	**25**	**25**	**30**	**40**	**40**	
Myanmar		**Refinery**	**Developing**								**25**	**100**	**100**	**100**
Myanmar		**Refinery**	**Total Status**					**20**	**25**	**25**	**55**	**140**	**140**	**100**
Letpadaung (SX-EW)	Wanbao Mining Copper Co.(China North Industries Corp. - Norinco holds 60%)	Electrowinning	Developing	2015		Leach	Cooperation agreement with government signed on Jun10 to develop the Letpadaung deposit of the Monywa complex that contains three deposits. Expected production of 100ktpy. China Nerin Engineering Co. Ltd responsible for the design of the project. Facing local oposition				25	100	100	100

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Monywa (SX-EW)	Wanbao Mining Copper Co.(China North Industries Corp. - Norinco holds 60%)	Electrowinning	Operating	1998		Leach	Switched from concentrates to SX-EW in 1998. Ivanhoe Mines (50%) divested from the mine in Feb 2007 to a Trust. Other 50% held by government. Operational problems reduced production. Closed 2008 reopened 2009. Currently explores two of the three deposits of the Monywa complex (other deposit is Letpadaung). In 2010 Monywa complex was purchased 100% by Wanbao Mining that is developing the Letpadaung deposit. Expansion to 40ktpy in 2015.	20	25	25	30	40	40	
Namibia		**Refinery**	**Developing**								**7**	**17**	**17**	**17**
Namibia		**Refinery**	**Planned**										**0**	
Namibia		**Refinery**	**Total Status**								**7**	**17**	**17**	**17**
Haib (SX-EW)	Teck Resources Ltd, Afri-can Marine Minerals Corp.	Electrowinning	Planned			Leach	The ore contains an average of 3% to 4% pyrite, which is ideal for bio-heap leaching. The pyrite, being a good heat generator, helps to increase recovery rate.						0	
Tschudi (SX-EW)	Weatherly Mining Namibia (Weatherly International Plc 97%)	Electrowinning	Developing	2015		Leach	Underground mine operated from Oct 2007 to Dec 2008. Start of construction of opencast mine with SX/EW processing plant in Dec 2013. First cathode copper expected Q2 2015. Expected capacity at 17ktpy cathode, mine life 11 years.				7	17	17	17
North Korea		**Refinery**	**Operating**					**65**	**65**	**65**	**65**	**65**	**65**	
Nampo Refinery	North Korean Government	Electrolytic	Operating	1914		Blister, Anode & Scrap		40	40	40	40	40	40	
Tanchon (Hungnam)	North Korean Government	Electrolytic	Operating			Anode		25	25	25	25	25	25	
Norway		**Refinery**	**Operating**					**40**	**40**	**40**	**40**	**40**	**40**	
Nikkelverk	Glencore plc	Electrolytic	Operating	1980		Cu/Ni matte	Processes imported Cu/Ni matte.	40	40	40	40	40	40	
Oman		**Refinery**	**Operating**					**33**	**33**	**33**	**33**	**33**	**33**	
Sohar Copper Refinery	Oman Mining Co.	Electrolytic	Operating	1983		Anode		33	33	33	33	33	33	
Peru		**Refinery**	**Operating**					**563**	**563**	**563**	**563**	**563**	**563**	
Peru		**Refinery**	**Developing**							**10**	**50**	**50**	**70**	**170**
Peru		**Refinery**	**Planned**								**5**	**50**	**50**	**350**
Peru		**Refinery**	**Total Status**					**572**	**568**	**573**	**618**	**663**	**683**	**520**
Cerro-Negro (SX-EW)	Freeport-McMoRan Copper & Gold Inc.	Electrowinning	Operating	2012		Leach	Considered as Cerro Verde reserves. Restart mining 2012.						0	
Cerro Verde I Leach Pad (SX-EW)	Freeport-McMoRan Copper & Gold Inc. 53.5%, Compañia de Minas Buenaventura 18.5%, Sumitomo 21%	Electrowinning	Operating	1977		Leach		80	80	80	80	80	80	
Chapi (SX-EW)	Compañia Minera Milpo (Minera Pampa de Cobre)	Electrowinning	Operating	2006		Leach	Started Jan2006. Mine life 14 years. Undergoing studies for the Chapi Sulphides project to produce concentrates . Temporary suspendion since 2013 but plans to restart prod in 2015.	8	8	8	8	8	8	

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Refineries	Operator/Owner(s)	Process	Status	Start Up	Date of Closure	Raw Materials	Short Remarks	2012	2013	2014	2015	2016	2017	Project Cap.
Coroccohuayco (SX-EW)	Glencore plc	Electrowinning	Planned	2015		Leach	Deposit is being evaluated as a potential open pit satellite mine to expand production further at Antapaccay. Production utilising Tintaya Sx-Ew infrastructure. Mineral Resource of 290 Mt @ 1.03% copper. Potential copper production of up to 100ktpy. LOM 25+ years.				5	50	50	50
Ilo Copper Refinery	Southern Copper Corp.	Electrolytic	Operating	1975		Anode		360	360	360	360	360	360	
La Granja (SX-EW)	Peruvian Government (Rio Tinto is exploring the project)	Electrowinning	Planned	2019		Leach	Inferred resource of 3.6 billion tonnes at 0.51% copper. Mine life of 40 years, Average peak production over 500 ktpa. Several development pathway options. Pre-feasibility on Phase 1 in 2014 of 80ktpy production.						0	300
La Oroya Refinery	Doe Run	Electrolytic	Operating	1922		Anode	see smelter remarks	80	80	80	80	80	80	
Lunahuana (SX-EW)	Cadente Copper Corp.	Electrowinning	Planned			Leach	potential for SX-EW						0	
Mina Justa (SX-EW)	Marcobre (Minsur 70%, Korean partners 30%)	Electrowinning	Developing	2014		Leach	Marcona Copper Project. Expected prod 60ktpy Cu in concs & 50ktpy cathode. Mine life 11.5Y. SX-EW prod starts in 2014 & concs in 2015. Charriot Resources taken over by CST Mining in Jun10. EIA approved in Sep 2010. In 2012 CST sold stake to Minsur			10	50	50	50	50
Tia Maria (SX-EW)	Southern Copper Corp. (Grupo Mexico)	Electrowinning	Developing	2017		Leach	Cap 120ktpy. Startup delayed from 2011 to end 2012 but project suspended by governmental action in April 2011 in light of social protests and environment study was rejected by government. Equipment already ordered was redirected to Buena Vista del Cobre expansion (Mexico). End 2013 submitted the new EIA to MINEM. Company expects to receive approval of this study in 3Q 2014 and resume work on the project, with the goal of production start-up late in 2016 but risk of further delays.						20	120
Tintaya (SX-EW)	Glencore plc	Electrowinning	Closed	2002	2013	Leach	End of life 1Q2013. Antapaccay and Coroccohuayco utilizing Tintaya infrastructures.	9	5					
Toquepala (SX-EW)	Southern Copper Corp.	Electrowinning	Operating	1995		Leach	Expansion project: increase in milling capacity of 60ktpd that should increase concentrate production by 100ktpy Cu and 3,100 tons of Mo. The EIA was presented to MINEM in July 2011. Company expect to get approval of the EIA by end 2014	35	35	35	35	35	35	
Philippines		**Refinery**	**Operating**					**215**	**215**	**215**	**215**	**215**	**300**	
Philippines		**Refinery**	**Planned**										**2**	**70**
Philippines		**Refinery**	**Total Status**					**215**	**215**	**215**	**215**	**215**	**302**	**70**
Isabel/ Leyte (PASAR) (refinery)	Glencore plc78.2%, Local investors 21.8%	Electrolytic	Operating	1983		Anode	Expanded to 215ktpy in Nov06. Expansion to 350kt underway	215	215	215	215	215	300	
King King (SX-EW)	St Augustine Gold & Copper Ltd	Electrowinning	Planned	2017		Leach	Proven and probable mineral reserve of 617.9Mt at 0.3% Cu and 0.395 g/t Au. Avg annual production of copper contained in concentrates at 52kt in years1-5 and 42kt in LOM and 70kt cathode in years 1-5 and 50kt in LOM. Mine life 22 years, concentrate production starts 2018 and cathode in 2017.						2	70

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Refineries	Operator/Owner(s)	Process	Status	Start Up	Date of Closure	Raw Materials	Short Remarks	2012	2013	2014	2015	2016	2017	Project Cap.
Poland		**Refinery**	**Operating**					**580**	**580**	**580**	**580**	**580**	**580**	
Glogow I (refinery)	KGHM Polska Miedz, S.A. (KGHM)	Electrolytic	Operating	1971		Anode	Possible expansion to 360,000tpy.	235	235	235	235	235	235	
Glogow II (refinery)	KGHM Polska Miedz, S.A. (KGHM)	Electrolytic	Operating	1978		Anode		235	235	235	235	235	235	
Legnica	KGHM Polska Miedz, S.A. (KGHM)	Electrolytic	Operating	1959		Anode		110	110	110	110	110	110	
Romania		**Refinery**	**Closed**											
Baia Mare	Cuprom S.A.	Electrolytic	Closed	1965	2009	Primary & Secondary anode	Closed in 2009							
Russia		**Refinery**	**Operating**					**1,083**	**1,163**	**1,163**	**1,163**	**1,163**	**1,161**	
Russia		**Refinery**	**Planned**											**450**
Russia		**Refinery**	**Total Status**					**1,083**	**1,163**	**1,163**	**1,163**	**1,163**	**1,161**	**450**
Gumeshevskoye (SX-EW)	Uralgidromed (Russian Copper Company)	Electrowinning	Operating	2005			Hydrometallurgical plant started Sep 05 at depleted mine Gumeshevskiy in Sverdlovsk region. Capacity 5ktpy cathodes. To operate for 12 years.	5	5	5	5	5	3	
Kyshtym	Russian Copper Comp.	Electrolytic	Operating	1922		Anode	Expansion from 80ktpy to 120ktpy in 2005.	120	120	120	120	120	120	
Monchegorsk	Norilsk Nickel (Kola MMC)	Electrolytic	Operating	1944		Cu/Ni Matte, Scrap	The "JSC Kola Mining & Metallurgical Company" was established in 1998 by two metallurgical enterprises of the Kola Peninsula: The Severonickel Metallurgical Combine and the Pechenganickel Mining & Metallurgical Combine.	100	100	100	100	100	100	
Murmansk (SX-EW)	Norilsk Nickel (Kola MMC)	Electrowinning	Operating	2003		Leach		15	15	15	15	15	15	
Norilsk Refinery	Norilsk Nickel	Electrolytic	Operating	1951		Cu/Ni Matte		330	330	330	330	330	330	
Novgorod	Russian Copper Comp.	Electrolytic	Operating	2003		Secondary Anode	Started 2003. Specializes in processing secondary raw materials with copper content of 60-95%. Outotec Wenmec technology. In 2005, capacity expanded from 40 to 75ktpy cathodes. Outotec's t converter for processing alloys with low copper content. Industrial complex includes 180-ton melting furnace Maerz used for processing of a copper-rich scrap; Outotec teeming complex and electrolysis baths	75	75	75	75	75	75	
Pyshma Refinery	Uralelectromed (Urals Mining & Metallurgical Co.)	Electrolytic	Operating	1934		Anode	Expansion to 500ktpy in 2012. New electrolysis plant to be constructed.	420	500	500	500	500	500	
Yuzhuralnikel	Yuzhuralnikel	Electrolytic	Operating			Scrap	Converted nickel refinery based on scrap.	18	18	18	18	18	18	

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Udokan (SX-EW)	MetalloInvest	Electrowinning	Planned	2020		Leach	Metalloinvest won development licence in Sep08. Baikal Mining Company is the operator. 2.75 bl tons of ore @ 0.97% Cu for a copper resource of 27Mt. Reserves of 16Mt. Planned 1st stage development of 150ktpy Cu SX-EW by 2014 increasing to 500ktpy by 2016 but start-up delayed. In May 2014 signed a Strategic Cooperation Agreement with HOPU Investments private equity firm regarding arrangement of project financing and attraction of equity and long-term debt financing. Plans to form an investment Consortium with HOPU comprising major Chinese players in the industrial sector and financial institutions.							450
Serbia		**Refinery**	**Operating**					**170**	**170**	**80**	**80**	**80**	**80**	
Bor (refinery)	RTB Bor	Electrolytic	Operating	1980		Anode, Scrap	Production constrained to around 40ktpy after 2000. Agreement with Canadian Agency for Export and Development to fund modernization of the plant. To replace old reverb smelter by Outotec Flash Furnace with capacity of 80ktpy. New acid plant. Stratup delayed due to lack of building permits from 2013 to end 2014.	170	170	80	80	80	80	
South Africa		**Refinery**	**Operating**					**169**	**169**	**169**	**169**	**169**	**169**	
Impala Platinum (EW)	Impala Platinum Ltd.	Electrowinning	Operating			Matte		7	7	7	7	7	7	
Marikana/ Transvaal (SX-EW)	Western Platinum (Lonmin Platinum)	Electrowinning	Operating	1985		Pt ores		2	2	2	2	2	2	
Metal Sales	Metal Sales Co. Pty (Lonmin Platinum)	Fire Refining (S)	Operating			Scrap		7	7	7	7	7	7	
Palabora Refinery	Palabora Mining Co. (Industrial Development Corporation of South Africa 20%, Hebei Iron and Steel Group 35%, General Nice 20%, Tewoo 20%, CAD Fund 5%)	Electrolytic	Operating			Anode	Rio Tinto divested its 57.7% effective shareholding in the company and Aglo American of its 16.8% effective July 2013	140	140	140	140	140	140	
Rustenburg/ Amandelbult (SX-EW)	Anglo American Platinum Corp.	Electrowinning	Operating			Matte		13	13	13	13	13	13	
Spain		**Refinery**	**Operating**					**460**	**460**	**460**	**460**	**460**	**460**	
Barcelona	La Farga	Fire Refining (S)	Operating			Scrap		70	70	70	70	70	70	
Huelva (refinery)	Atlantic Copper S.A. (Freeport McMoran)	Electrolytic	Operating	1967		Anode		320	320	320	320	320	320	
Las Cruces (SX-EW)	First Quantum Minerals Ltd	Electrowinning	Operating	2008	2022	Leach	Started May 08. SX-EW plant delayed to Mar 09 due to suspension of autorization of DRS in May08. May produce ore for smelters depending on market conditions. Mine life as of Dec 2013 is 9 years	70	70	70	70	70	70	
Sweden		**Refinery**	**Operating**					**250**	**250**	**250**	**250**	**250**	**250**	
Ronnskar	Boliden Mineral AB	Electrolytic (P & S)	Operating			Anode, Scrap	Also treats anodes from Boliden's Harjavalta smelter in Finland.	250	250	250	250	250	250	

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Table 3: WORLD COPPER REFINERIES PRODUCTION CAPACITY 2012 To 2017

Thousand metric tonnes copper

Refineries	Operator/Owner(s)	Process	Status	Start Up	Date of Closure	Raw Materials	Short Remarks	2012	2013	2014	2015	2016	2017	Project Cap.
Thailand		**Refinery**	**Closed**										**0**	
Thailand		**Refinery**	**Planned**										**0**	**30**
Thailand		**Refinery**	**Total Status**										**0**	**30**
Puthep (SX-EW)	PanAust Ltd 51%, Padaeng Industry Co. 49%	Electrowinning	Planned			Leach	Targetting 25-30ktpy cathode. Mine life 8 years.						0	30
Rayong Copper	Thai Asset Management Co. 40%, Thai Film industry 30%, Aker Kvaerner 30%	Electrolytic	Closed	2004	2007	Anode	Technical problems reduced production 2005-2007. Closed Apr 07 due to financial problems.						0	
Turkey		**Refinery**	**Operating**					**199**	**229**	**229**	**229**	**229**	**229**	
Denizli (Ismir)	ER Bakir Elektrolitik	Electrolytic	Operating			Anode		20	20	20	20	20	20	
Gebze (Kocaeli)	Sarkuysan Electrolytic Copper Ltd.	Electrolytic	Operating	1975		Anode		100	100	100	100	100	100	
Kayseri	HES Hacılar Elektrik Sanayi ve Ticaret A.Ş	Electrolytic	Operating	1983		Anode, Scrap		24	24	24	24	24	24	
Samsun (Elektrosan)	Elektrosan A.Ş.	Electrolytic	Operating	1977		Anode		10	10	10	10	10	10	
Samsun (Etibakir)	Eti Bakir A.S.	Electrolytic	Operating	2011		Anode	Started 1st quarter 2011. Capacity 75ktpy cathodes.	45	75	75	75	75	75	
Ukraine		**Refinery**	**Operating**					**65**	**65**	**65**	**65**	**65**	**65**	
Artemov	Tracko Ltd. (23%), Slavhandel AG (23%)	Fire Refining (S)	Operating			Scrap		35	35	35	35	35	35	
Pancomm	Pancomm	Electrolytic	Operating	2001		Anode		30	30	30	30	30	30	
United States		**Refinery**	**Operating**					**2,079**	**2,095**	**2,089**	**2,090**	**2,080**	**2,079**	
United States		**Refinery**	**Developing**									**2**	**6**	**6**
United States		**Refinery**	**Planned**									**25**	**51**	**133**
United States		**Refinery**	**Closed**											
United States		**Refinery**	**Total Status**					**2,079**	**2,095**	**2,089**	**2,090**	**2,107**	**2,136**	**139**
Amarillo	Grupo Mexico	Electrolytic	Operating			Anode	Operating below capacity (150,000tpy).	450	450	450	450	450	450	
Bagdad (SX-EW)	Freeport-McMoRan Copper & Gold Inc.	Electrowinning	Operating			Leach	Concentrate leach converted to Molybdenum production in 2009	12	12	12	12	12	12	
Carlota (SX-EW)	KGHM	Electrowinning	Operating	2008		Leach	Carlota was implementing a mine closure plan and was expected to continue mining through Q2 2014 and residual leaching operations until 2017.	34	34	20	15	15	10	
Chino (Santa Rita) (SX-EW)	Freeport-McMoRan Copper & Gold Inc.	Electrowinning	Operating	1988		Leach	Mining put on C&M end 2008; only risidual leach continued from existing leach stockpiles. 2010 restarted mining and milling activities and planned rates are expected to be achieved by the end of 2014.	55	55	55	55	55	55	
Chloride Copper Mine (Emerald Isle) (SX-EW)	Sierra Resources Group Inc.	Electrowinning	Developing	2016		Leach	Former Arimetco plant (2004). Planned upgrade to 4ktpy. Expected to start in 2014 but delayed.					1	4	4
El Paso (refinery)	Freeport-McMoRan Copper & Gold Inc.	Electrolytic	Operating			Anode	Operating at reduced capacity.	415	415	415	415	415	415	
Florence (SX-EW)	Curis Resources Ltd	Electrowinning	Planned	2016		Leach	Insitu SXEW, Former BHP project with prefeasibility conducted 1999. Cursis prefeasibility study conducted in Q1 2013. Possible capacity of 35ktpy cathode.					20	35	35

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Refineries	Operator/Owner(s)	Process	Status	Start Up	Date of Closure	Raw Materials	Short Remarks	2012	2013	2014	2015	2016	2017	Project Cap.
Garfield	Kennecott (Rio Tinto)	Electrolytic	Operating			Anode	New plant started in 1995.	300	300	300	300	300	300	
Idaho Cobalt Project (SX-EW)	Formation Capital Corp.	Electrowinning	Developing	2016		Leach	Construction begun 1st Q10. Startup slated 1Q2014. Capacity 2ktpy. In May, 2013, construction was suspended owing to weak cobalt prices and volatile market conditions.					1	2	2
Indiana	Essex Group	Fire Refining (S)	Operating	1985		Scrap, Blister		18	18	18	18	18	18	
Johnson Camp (SX-EW)	Nord Resources	Electrowinning	Operating	1990		Leach	Closed 2003. New ore leaching began feb 2009, suspended in Jul 2010. Production from residual leaching. If new financing is obtained, production capacity could be increased to about 11,500 t/yr.	5	4	3	12	12	12	
Lisbon Valley (SX-EW)	Lisbon Valley Mining Co. (formerly Constellation Copper Corp.)	Electrowinning	Operating	2006		Leach	Started April 06. Mining suspended Nov 07.Filed for bakruptcy protection in 2008. Risidual leach only. New mining began 2010. Former Constelation Copper Corp.	10	10	10	10	10	10	
Miami (leach)	BHP Copper Co.	Electrowinning	Operating			Leach		3	2	2	2	2	2	
Miami (sx-ew)	Freeport-McMoRan Copper & Gold Inc.	Electrowinning	Operating	1968		Leach	Mining ceased 01and prod continued from residual leach. Planned restart of Miami mine deferred in late 08 due to weak market conditions. 4Q09 initiated plans to restart prod. When reserves depleated wil switch to residual leach.	50	50	50	50	40	40	
Milford (SX-EW)	CS Mining	Electrowinning	Operating	2009		Leach	Multiple deposits in Milford area. Concs, SX-EW, vat leach and dump leach. Conc prod started Jul09. SX-EW production in 2nd phase. Filled for bankruptcy in May 2010. Acquisiition of the mining assets of Western Utah Copper Company and Copper King Mining Corporation in August of 2011. CS Mining intends to improve the efficiency of the flotation mill, construct a new tailings pond and complete additional metallurgical testing within 3-4 months prior to the restart of operations						4	
Mineral Park (sx-ew)	Mercator Minerals Ltd	Electrowinning	Operating	1994	2033	Leach	Expanded in 2006. Reduced capacity owing to lower mining rate with startup of concentrate prod. Mercator Minerals Ltd. and Intergeo MMC Ltd (Onexim Group) merged in 2014.	5	3	3	3	3	3	
Morenci (SX-EW)	Freeport-McMoRan Inc 85%, 15% affiliates of Sumitomo Corporation	Electrowinning	Operating	1987		Leach	Concentrate production/leach placed on C&M end 2008 and mining rate reduced by 50%. Mar10 restarted Morenci mill that was shut down in Feb09. Expantion of mining and milling capacity to process additional sulfide ores targeting incremental annual production approx 100kt Cu in 1H 2014	350	350	350	350	350	350	
Nokomis (SX-EW)	Twin Metals Minnesota ltd (JV Duluth Metals Ltd 60%, Antofagasta Plc 40%)	Electrowinning	Planned			sx-ew, platsol process	Indicated reserves: 13.7 billion lbs copper, 4.4 billion lbs nickel, and 21.2 million ozs palladium+platinum+gold (TPM). Projected at 82 ktpy Cu. Jan10, Antofagasta acquired 40% in Nokomis funding US$130 million on exploration/feasibility over 3 years. In July 2014 Antofagasta terminated the option to acquire an additional 25%. Pre-Feasibility study expected in 2014. Estimated startup after 2020						0	82
New Haven Refinery	La Farga	Fire Refining	Operating	2012		Scrap	Capacity 70ktpy. Uses only scrap.	30	70	70	70	70	70	
Phoenix (USA) (SX-EW)	Newmont Mining Corp	Electrowinning	Operating	2013		Leach	Production of around 10ktpy Cu in the first 5 years. Life of mine 25 years. Treats waste ore		1	10	10	10	10	

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Refineries	Operator/Owner(s)	Process	Status	Start Up	Date of Closure	Raw Materials	Short Remarks	2012	2013	2014	2015	2016	2017	Project Cap.
Pinto Valley (SX-EW)	Capstone Mining Corp.	Electrowinning	Operating		2026	Leach	Restarted mill 4Q 2007. Cessation of sulphide mining in Feb09 (C&M) and restarted 4Q2012. SX-EW continues operating with residual leaching. Sold by BHP Billiton to Capstone Mining Corp. in October 2013. Preliminary Feasibility Study to extend mine life by 8 years to 2026 completed in March 2014.	3	2	2	2	2	2	
Ray (SX-EW)	Asarco (Grupo Mexico)	Electrowinning	Operating	1974		Leach		47	47	47	47	47	47	
Reading	Reading Industries Inc.	Fire Refining (S)	Operating			Scrap, Blister		70	50	50	50	50	50	
Safford (SX-EW)	Freeport-McMoRan Copper & Gold Inc.	Electrowinning	Operating	2008		Leach	Started early 2008. 50% reduction in mining due to weak market conditions (Jan 09). 2010 production levels back to normal.	110	110	110	110	110	110	
Sierrita (SX-EW)	Freeport-McMoRan Copper & Gold Inc.	Electrowinning	Operating	1987		Leach	Reserve depletion 2009. Production from residual leach	2	2	2	2	2	2	
Silver Bell (SX-EW)	Grupo Mexico	Electrowinning	Operating	1997		Leach	Producing over design capacity.	22	22	22	22	22	22	
Tohono (Casa Grande) (SXEW)	Freeport-McMoRan Copper & Gold Inc.	Electrowinning	Operating	1984		Leach	Restarted 1st April 2005. Put on C&M in 2009.	3	3	3				
Tyrone Leach (SX-EW)	Burro Chief Copper Co. (Freeport-McMoRan Copper & Gold Inc.)	Electrowinning	Operating	1984		Leach	Operating at reduced mining rate to extend limited reserves. 50% reduction in mining due to weak market conditions (Jan 09)	50	50	50	50	50	50	
Van Dyke (SX-EW)	Copper Fox Metals Inc.	Electrowinning	Planned			Leach	On 2012, Bell Copper sold project to Copper Fox Metals Inc.						0	
Warrenton	American Iron & Metal Inc	Fire Refining (S)	Operating			Scrap, blister	Was closed 1999 and restarted Feb. 2000.	35	35	35	35	35	35	
White Pine (refinery)	Hudbay Minerals Inc	Electrolytic	Closed	1982	2010	Anode	Operations at the refinery ceased in July 2010 following the smelter closure. Copper cathode production for 2010 was 20,933 tonnes. The last anode was loaded on July 6th and the last cathode produced on July 27th.							
Zonia (SX-EW)	Redstone Resources Corp.	Electrowinning	Planned	2016		Leach	Brownfield project. Final feasibility end 2010 for 16ktpy SX-EW. Formerly Copper Mesa Mining Corp					5	16	16
Uzbekistan		**Refinery**	**Operating**					**145**	**145**	**145**	**145**	**145**	**145**	
Almalyk Refinery	Almalyk Mining and Metallurgical Complex	Electrolytic	Operating	1968		Anode	Company undergoing a Program for modernization, technical and technological re-equipment of in 2013-2015 including new Sulfur-Acid Plant and smelting furnace. In Oct 2013 Engineering Dobersek won a tender to build a new 16,700 tonnes per year copper smelting furnace scheduled for completion in October 2015. The project will be financed in part by a loan of the Fund for Reconstruction and Development of Uzbekistan.	145	145	145	145	145	145	
Vietnam		**Refinery**	**Operating**					**11**	**11**	**11**	**11**	**11**	**11**	
Sin Quen (refinery)	Vietnam National Coal and Mineral Industries Group (Vinacomin)	Electrolytic	Operating	2008		Anode	Started Jun 08.	11	11	11	11	11	11	

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Thousand metric tonnes copper

Refineries	Operator/Owner(s)	Process	Status	Start Up	Date of Closure	Raw Materials	Short Remarks	2012	2013	2014	2015	2016	2017	Project Cap.
Zambia		**Refinery**	**Operating**					**936**	**1,003**	**1,008**	**1,008**	**1,008**	**1,008**	
Zambia		**Refinery**	**Developing**							**3**	**28**	**65**	**123**	**123**
Zambia		**Refinery**	**Planned**										**0**	**6**
Zambia		**Refinery**	**Closed**											
Zambia		**Refinery**	**Total Status**					**936**	**1,003**	**1,011**	**1,036**	**1,073**	**1,131**	**129**
Bwana Mkubwa (SX-EW)	First Quantum Minerals	Electrowinning	Closed	1998	2010	Leach	Treated Lonshi ore (DRC) that closed Aug 08. Placed on C&M in Oct 08. Restarted Jan10 to process Lonshi stockpiled ore until 3Q 2010 and closed. SX-EW plant to be used at Kansanshi expansion.							
Chambishi (SX-EW)	Sino-Metals Leach Zambia Ltd	Electrowinning	Operating	2004		Leach	Chambishi Leach Plant, 2004, cap 7ktpy cathode: Mineral resource sources from stripped waste rock, oxidized ore, taillings of heap leaching and flotation taillings from the Chambishi mining area. Chambishi Processing Plant, May 2011, cap 2.5ktpy Cu in concs: Treats oxidized ore from Chambishi West Mine, waste rock and expected to treat oxidized ore from Mwambashi.	8	8	8	8	8	8	
Chingola Refractory Ore (SX-EW)	Konkola Copper Mines (Vedanta 51%, Zambia Copper Investments Ltd. (ZCI) 28.4%, ZCCM 20.6%)	Electrowinning	Developing	2016		Leach	CRO has been stockpiled at Nchanga since 1955 containing 150MTore @ 8%Cu. Project under review. Capacity 50ktpy Cu.					25	50	50
Ichimpe (SX-EW)	Zhonghui Mining Group	Electrowinning	Developing	2014		Leach	Expected startup in 2014 at a capacity of 35ktpy Cu cathode			2	25	35	35	35
Kakoso (SX-EW)	Sino-Metals Leach Zambia Ltd 88%, Shenzen Resources Ltd 12%	Electrowinning	Developing	2014		Leach	Taillings deposit @0.6% Cu. Cap 3ktpy. Mine life 12years. Starts 2014.			1	3	3	3	3
Kangaluwi-Chisawa (SX-EW)	Zambezi Resources, Ltd	Electrowinning	Developing	2016		Leach	The Kangaluwi, Chisawa and Kalulu are three prospects within the Kangaluwi Copper Project. 46 Mt @ 0.67% Cu for 300 kt contained copper from the Kangaluwi, Chisawa and Kalulu deposits. Bankable Feasibility Study in 2012. 35ktpy cathode, mine life 5Y. Startup expected for 2014 but delayed as Environmental Impact Study was rejected. Company appealed to overturn the rejection.					2	35	35
Kansanshi (SX-EW)	First Quantum Minerals Ltd (80%), ZCCM (20%)	Electrowinning	Operating	2004		Leach	Multi Phases Expansion: Phase1 in 2012, from 250 to 285ktpy Cu, expanding oxide circuit capacity and building in flexibility to allow for the mixed and sulphide circuits to be switched as needed to suit mining activity. Using relocated equipment from Bwana Mkubwa closed SX/EW plant and new installations. Further expansion of oxide circuit to 14.5Mtpa completed Nov 2013. Full utilization of this SXEW processing capacity once the new copper smelter is in operation providing sulphuric acid. Due to the high cost of exporting concs the completion of the sulphide expansion has been defered until 2017 when the smelter capacity is also expanded . At conclusion total mine capacity of 400ktpy Cu.	110	110	110	110	110	110	
Mashiba (SX-EW)	Luanshya Copper Mines (80% China Nonferrous Metals Mining Co, 20% ZCCM Investment Holdings)	Electrowinning	Planned			Leach	Included in Muliashi						0	6

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Thousand metric tonnes copper

Refineries	Operator/Owner(s)	Process	Status	Start Up	Date of Closure	Raw Materials	Short Remarks	2012	2013	2014	2015	2016	2017	Project Cap.
Mufulira & Nkana (SX-EW)	Mopani Copper Mines plc. (First Quantum Minerals Ltd 16.9%, Glencore plc 73.1%, Zambia Consolidated Copper Mines Ltd. - ZCCM 10%)	Electrowinning	Operating	2000		Leach	Includes 2 plants at Mufulira and 2 plants at Nkana. Expansion to 100ktpy by end 2008.	100	100	100	100	100	100	
Mufulira Refinery	Mopani Copper Mines plc. (First Quantum Minerals Ltd 16.9%, Glencore plc 73.1%, Zambia Consolidated Copper	Electrolytic	Operating	1952		Anode		265	265	265	265	265	265	
Muliashi (SX-EW)	Luanshya Copper Mines (80% China Nonferrous Metals Mining Co, 20% ZCCM Investment Holdings)	Electrowinning	Operating	2012		Leach	Cap 40ktpy Cu. Start-up planned for end 2009 but delayed to Dec 2011. Prod started Mar2012. Mine life 13Y. CNFM bought 80% in Luanshya Mines in May09.	18	35	40	40	40	40	
Nchanga TLP (SX-EW)	Konkola Copper Mines (Vedanta 51%, Zambia Copper Investments Ltd. (ZCI) 28.4%, ZCCM 20.6%)	Electrowinning	Operating	1975			Oct09 opened one of the Tailings dumps for processing through TLP operation. Expansion comissioned in 2012. Trated Fitwaola ore.	100	130	130	130	130	130	
Nkana (Kitwe)	Konkola Copper Mines (Vedanta 51%, Zambia Copper Investments Ltd. (ZCI) 28.4%, ZCCM 20.6%)	Electrolytic	Operating	1935		Anode	Expansion to 300kt by end 2008	300	300	300	300	300	300	
Nkana Slag Dumps/ Chambishi Cobalt Plant (SX-EW)	Eurasian Natural Resources Corporation PLC (ENRC) 90%, ZCCM Investments Holdings PLC 10%	Electrowinning	Operating	2001		Leach	Roast leach EW plant, electric arc furnace, pressure leach plant, slag dump 16.6MT avg 1.10% Cu. Put on C&M in Jan09 due to market conditions and sale of Luanshya mine that was providing feed. Re-started Nov09. Bought by ENRC in 2010. Exp in 2012 to 55kt	30	55	55	55	55	55	
Sable Zinc	Glencore plc	Electrowinning	Operating	2006		Concs.	Treats Ruashi stockpiles (DRC). After Ruashi Phase II implemented may toll treat concs for third parties. Sold by Metorex to Glencore in Sep 2011.	5						
Zimbabwe		**Refinery**	**Operating**					**7**	**7**	**7**	**7**	**7**	**7**	
Eiffel Flats	Rio Tinto Mining (Zimbabwe) Ltd.	Electrowinning	Operating			Cu/Ni matte		7	7	7	7	7	7	
World		**Refinery**	**Operating**					**25,121**	**26,528**	**27,455**	**27,918**	**27,959**	**27,801**	
World		**Refinery**	**Developing**							**265**	**687**	**920**	**1,035**	**1,138**
World		**Refinery**	**Planned**								**5**	**152**	**470**	**3,333**
World		**Refinery**	**Closed (includes Port Kembla C&M - Australia)**					**189**	**161**	**120**	**120**	**120**	**120**	
World		**Refinery**	**Total Status**					**25,310**	**26,689**	**27,840**	**28,730**	**29,151**	**29,426**	**4,471**

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Table 4: WORLD COPPER ELECTROWINNING PRODUCTION CAPACITY 2012 To 2017

Thousand metric tonnes copper

Refineries	Operator/Owner(s)	Process	Status	Start Up	Date of Closure	Raw Materials	Short Remarks	2012	2013	2014	2015	2016	2017	Project Cap.
Argentina			**Planned**										**0**	**279**
San Jorge (SX-EW)	Coro Mining Corp.	Electrowinning	Planned			Leach	Mineral reserves of 48.4 million tonnes, with an average grade of 0.61%CuT, of which 55% is oxide and 45% is enriched. Completed PFS for 24 ktpy Cu bi-provincial heap leach project, involving transport of ore from mine site in Mendoza to proposed SXEW plant site in San Juan province due to a ban on sulphuric acid use in Mendoza state. Mine life 10Y. Dec 2013 signed a binding Heads of Agreement ("HOA") with a group comprised of Aterra Investments Ltd. and Solway Industries Ltd. for them to have rights to acquire an interest in the San Jorge project .						0	24
Los Azules (SX-EW)	McEwen Mining Inc.	Electrowinning	Planned			Leach	Annual copper production during years 1-5 to average 255kt. Life of mine annual copper production to average 171kt over 35 years. Indicated resource of 5.4 Bl lb Cu (0.63% Cu) and 0.8 Moz and Inferred resource of 14.3 Bl lb Cu (0.46% Cu) and 2.6 Moz Au. The mine would produce a copper cathode via a pressure oxidative leach process, in addition to heap leaching the lower grade mineralized material.						0	255
Australia			**Operating**					**68**	**68**	**68**	**68**	**69**	**71**	
Australia			**Developing**											
Australia			**Planned**										**0**	**15**
Australia			**Total Status**					**68**	**68**	**68**	**68**	**69**	**71**	**15**
Browns Oxide Project (SX-EW)	Compass Resources (90%)	Electrowinning	Operating	2008		Leach	Started May 2008, capacity 10ktpy. Mine life 10 years. Possible conc prod (sulfide project). On Jan 2009, Compass Resources went into voluntary administration. Mine on C&M since end 2010.	10	10	10	10	10	10	
Lady Annie (SX-EW)	CST Mining Group Ltd.	Electrowinning	Operating	2007		Leach	Started Jun07. CopperCo entered receivership in Nov08. Mining activities suspended in Mar09. CST Mining acquired mine in May 2010 and mine restarted production in Nov 2010.	30	30	30	30	30	30	
Mt Cuthbert & Mt Watson Project (SX-EW)	Malaco Leichard Pty	Electrowinning	Operating	1997, 2007		Leach	Closed in 2002. Restarted Jun07. Mt Cuthbert processing facility + Mt Watson & Leichhardt deposit. Exp. to 9ktpy in 2008. Matrix Metals placed in receivership Nov08. On full C&M since Feb09. Cape Lambert acquired mine in 2010. Malaco Leichardt Pty bought mine in 2013 and production restarted in Feb 2014. Capacity of 9ktpy cathode with potential to further increase capacity via modular expansions	9	9	9	9	9	9	
Nifty (SX-EW)	Aditya Birla Minerals	Electrowinning	Closed	1993	2009	Copper-bearing fluids	Concentrate production started 3Q05. Cathode production ended in 2009 with ceasing of oxide ore mining.							
Olympic Dam (SX-EW)	BHP Billiton	Electrowinning	Operating	1988		Leach	Project: new OP mine operating simultaneously with existing UG mine. Smelter to be expanded,new concentrator & hydrometallurgical plants to be built. Additional 1.8Mtpy of Concs and 515kt cathode. Expansion would be a progressive development with construction activity over a period of 11 years. An Identification Phase Study is being conducted to identify all possible mining methodes and less capital intensive designs.	15	15	15	15	15	15	
Port Pirie (SX-EW)	Nyrstar	Electrowinning	Operating	1984		Leach	By-product. Expansion to 7kt cathode planned for 2016	4	4	4	4	5	7	

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Table 4: WORLD COPPER ELECTROWINNING PRODUCTION CAPACITY 2012 To 2017

Thousand metric tonnes copper

Refineries	Operator/Owner(s)	Process	Status	Start Up	Date of Closure	Raw Materials	Short Remarks	2012	2013	2014	2015	2016	2017	Project Cap.
Whim Creek (SX-EW)	Venturex Resources	Electrowinning	closed	2005	2009	Leach	Mining ceassed Jun 09. Straits Resources sold SX-EW pant to Finders Resources for the Wetar project and sold Whim Creek project to Venturex Resources that will re-evaluate high grade sulphide mineralisation below oxide pit and design a drill program to confirm and extend known resources.						0	
White Range Project (SX-EW)	Queensland Mining Corporation Limited	Electrowinning	Planned			Leach	Possible 15-20ktpy cathode for mine life around 10 years. Bought by QMC in 2009 after Matrix Metals Ltd entered voluntary administration. Resource of 4.7Mt @1.1% Cu						0	15
Belgium			**Operating**					**28**	**28**	**28**	**28**	**28**	**28**	
Hoboken (EW)	Umicore	Electrowinning	Operating	2002			Cu leaching & electrowining plant treats smelter output.	28	28	28	28	28	28	
Bolivia			**Operating**					**4**	**4**	**4**	**4**	**4**	**4**	
Corocoro (SX-EW)	Korea Resources Corp. 45%, Corporación Minera de Boliviana (COMIBOL) 55%	Electrowinning	Operating	2009		Leach	Closed 1985. Reopened Oct. 2009. Production capacity of 4ktpy Cu with possibility to expand.	4	4	4	4	4	4	
Brazil			**Operating**					**5**	**5**	**5**	**5**			
Brazil			**Developing**											
Brazil			**Planned**										**0**	**40**
Brazil			**Closed**											
Brazil			**Total Status**					**5**	**5**	**5**	**5**		**0**	**40**
118 Project (SX-EW)	Vale (50%), BNDES (50%)	Electrowinning	Planned			Leach	Capacity 40ktpy Cu						0	40
Jaguarari (Sx-EW)	Mineração Caraiba SA (Glencore plc 28.5%)	Electrowinning	Operating	2007	2015	Leach	Started SX-EW plant in 2007, to close in 2015.	5	5	5	5			
UHC (SX-EW)	Vale	Electrowinning	Closed	2008	2010		Hydrometalurgical pilot test plant to treat Sossego complex ore. Cap 10ktpy Cu. Started Dec08, closed Jun10.							
Canada			**Operating**					**13**	**13**	**13**	**13**	**13**	**13**	
Canada			**Developing**											
Canada			**Planned**									**7**	**15**	**15**
Canada			**Total Status**					**13**	**13**	**13**	**13**	**20**	**28**	**15**
Carmacks (SX-EW)	Copper North Mining Corp.	Electrowinning	Planned	2016		Leach	Capacity 15ktpy Cu. Mine life 7years. Starts 1Q2016					7	15	15
Gibraltar (SX-EW)	Taseko Mines Ltd. 75%, Japanese Consortium 25%	Electrowinning	Operating	2006		Leach	Closed in 1992. Reopened Nov04. SX-EW started Dec 06. Exp to 82Kt by end 2012. 25% of Gibraltar mine sold in March 2010 to a Japanese Consortium (Sojitz Corporation 50%, Dowa Metals & Mining Co., Ltd. 25%, Furukawa Co., Ltd. 25%) 27 years of mine life. SX-EW plant temporarily closed in 2013 restarting in 2014	4	4	4	4	4	4	
Sudbury EW (Copper Cliff)	Vale Inco Ltd.	Electrowinning	Operating			Matte		9	9	9	9	9	9	

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Table 4: WORLD COPPER ELECTROWINNING PRODUCTION CAPACITY 2012 To 2017

Thousand metric tonnes copper

Refineries	Operator/Owner(s)	Process	Status	Start Up	Date of Closure	Raw Materials	Short Remarks	2012	2013	2014	2015	2016	2017	Project Cap.
Chile			**Operating**					**2,170**	**2,115**	**2,073**	**2,021**	**1,986**	**1,976**	
Chile			**Developing**								**31**	**90**	**92**	**92**
Chile			**Planned**										**2**	**66**
Chile			**Total Status**					**2,180**	**2,121**	**2,073**	**2,052**	**2,076**	**2,070**	**158**
Amalia (Catemu) (SX-EW)	CEMIN	Electrowinning	Operating	1973, 2007		Leach	Built by Enami in 1973 as purchasing power, for the treatment of insoluble copper minerals. In 1982, was acquired by the Mining Company Limited Catemu, operating continuously until 1999. It was reopened in 2007.	14	15	15	14	14	14	
Andacollo (SX-EW)	Teck Resources Ltd 90%, ENAMI 10%	Electrowinning	Operating	1996	2014	Leach	Concentrate production started 1Q10, SX-EW ends in 2014. Feasibility study to examine adding an additional SAG mill, ball mill and other associated plant and equipment aimed at increasing annual production of contained copper to 120,000 tonnes. Copper grades declining, but above reserve grade until 2018	5	5	5				
Antucoya (SX-EW)	Antofagasta Plc 70%, Marubeni Corporation 30%	Electrowinning	Developing	2015	2035	Leach	Resources of 1.5 billion tonnes @ 0.27% copper. Greenfield project expected to produce around 85ktpy cathode in 1st 5 years. Mine lfe 20Y. Startup was expected for 2014 but delayed to 1H 2015 as in Dec 2012 company decided to temporarily suspend development to enable review of the project given potential levels of cost escalation. In 2013 decidded to proceed with project development. Will use sea water.				30	85	85	85
Berta (SX-EW)	Coro Mining Corp.	Electrowinning	Developing	2015		Leach	5-10k tpy Cu open-pit, heap-leach project. Pregnant Leach Solution (PLS)/water pipeline to third party SXEW plant. Mine located at 33 km from Anglo American's Manto Verde copper mine. Coro has identified potential for additional copper oxide resources elsewhere on the property, and in the surrounding district.				1	5	7	7
Caserones (SX-EW)	Pan Pacific Copper Co.	Electrowinning	Operating	2013	2040	Leach	Former Regalito Project. Average production during initial 5 years: 150kt Cu in concentrates and 30kt SXEW cathodes. Avg production LOM (28 years): 110ktpy Cu in concs and 10kt cathodes. Cathode production started Mar 2013 with capacity to be reached in 2015. Concentrate production in 2014.		10	10	20	30	30	
Cerro Colorado (SX-EW)	BHP Billiton (100%)	Electrowinning	Operating	1994		Leach	Mine life until 2021 but currently evaluating the extend of hypogene mineralisation that may support further extention options.	80	80	80	70	70	70	
Cerro Dominador (SX-EW)	Copec Group	Electrowinning	Operating	2004		Leach	Copec, a diversified Chilean Group, aquired Dominador and Diego de Almagro from the Callejas group in 2010	5	5	5	5	5	5	
Cerro Negro (SX-EW)	Workers cooperative	Electrowinning	Operating	1944		Leach		6	6	6	6	6	6	
Codelco Norte (SX-EW)	Codelco	Electrowinning	Operating	1987		Leach	Codelco Norte formed from 2002 to 2010 included Chuquicamata and Radomiro Tomic (aggregated data in this period, before 2002 and after 2010 only data for Chuqicamata). Nov2010 split of Codelco Norte Division into two independent divisions: Chuquicamata and Radomiro Tomic. Chuqi underground project by 2018/2019 (366ktpy Cu)	50	50	50	50	50	50	

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Thousand metric tonnes copper

Refineries	Operator/Owner(s)	Process	Status	Start Up	Date of Closure	Raw Materials	Short Remarks	2012	2013	2014	2015	2016	2017	Project Cap.
Collahuasi (SX-EW)	Anglo American (44%), Glencore plc (44%), Mitsui + Nippon (12%)	Electrowinning	Operating	1998		Leach	Phase I expansion of 19kt in 2011, Phase II of 20kt in 2014. Phase III expansion of additional 469kt not yet appoved. Prefeasibility study for Phase III envisages construction of one or two new grinding lines, allowing production to rise to 800ktpy with a single line expansion, and to more than one million tonnes with both lines. Measured, Indicated and Inferred Resource at Dec 2012 are around 73Mt copper.	40	30	30	30	30	30	
Diego de Almagro (SX-EW)	Can Can, Copec Group	Electrowinning	Planned	2017		Leach	IOCG deposit with reserves estimated at 300,00 tons copper and 27,000 oz. Gold. Original plans included oxides and concentrating sulfides to produce 11ktpy SX-EW cathodes and 22ktpy copper concentrate. Phase I SX-EW starts in 2014, concentrates in 2015.						2	11
Dos Amigos (SX-EW)	CEMIN	Electrowinning	Operating			Leach		9	9	9	9	9	9	
El Abra (SX-EW)	Codelco (49%), Freeport-McMoRan Copper & Gold Inc. (51%)	Electrowinning	Operating	1996		Leach	In 2011 started production from its sulfide ores, which is replacing the depleting oxide copper production. The Sulfolix leach pads deferred to 2019. Possible development of a large sulfide deposit to extend mine life by over 20 years with a production of 300ktpy Cu in concentrates to replace depleting cathode production. Future investments will be dependent on technical studies, economic factors and global copper market conditions.	160	160	160	150	140	130	
El Espino (SX-EW)	Sociedad Punta del Cobre (Pucobre) 51%, Explorator Resources 49%	Electrowinning	Planned	2018		Leach	Possible production of 40ktpy cathode. Resources 145Mt grading 0.55% Cu						0	40
El Soldado (SX-EW)	Anglo American (100%)	Electrowinning	Operating	1993		Leach	SX-EW production ended in 2013. Concentrate production continues.	2	1					
El Teniente (SX-EW)	Codelco	Electrowinning	Operating	1983		Leach	Pilar Norte higher grade area started 2010 to offset decrease in production of other areas. NNM-Nuevo Nivel Mina project in 2018 to extend mine life for +50 years and to maintain capacity at around 430ktpy Cu. Further expansion options possible. En 2013 discovered a new orebody, La Huifa, at 3km from El Teniente with a potencial of 200 Mt @ 0.8-1% Cu.	3	3	3	3	3	3	
El Tesoro / Encuentro Oxides (SX-EW)	Antofagasta Plc (70%), Marubeni Corporation (30%)	Electrowinning	Operating	1997	2024	Leach	2 OP mines feeding a heap-leach and a run-of-mine ("ROM") leaching operation. Inclusion of material from Mirador oxide deposit improving production to aprox 100ktpy from Q4 2011 to 2014. In 1H2016 starts Encuentro Oxides project, OP mine to use spare capacity at El Tesoro SX-EW plant, LOM 8 years, capacity 50ktpy Cu that will enable total production capacity to be maintained at around 100ktpy. In June 2014 announced the merger of Esperanza and El Tesoro into a single company, Minera Centinela, and expects this to be legally completed during 4Q14	100	100	95	95	100	100	

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Table 4: WORLD COPPER ELECTROWINNING PRODUCTION CAPACITY 2012 To 2017

Thousand metric tonnes copper

Refineries	Operator/Owner(s)	Process	Status	Start Up	Date of Closure	Raw Materials	Short Remarks	2012	2013	2014	2015	2016	2017	Project Cap.
Escondida (SX-EW)	BHP Billiton (57.5%), Rio Tinto Corp. (30%), Japan Escondida (12.5%)	Electrowinning	Operating	1998		Leach	Norte started Oct 05. Sulfide leach started June 2006. Mine life 2040. Investments to sustain production levels & increase life of mine: Organic Growth 1 Project replaces the Los Colorados concentrator with a new 152,000 tpd plant in mid 2015 increasing total production to 1.27 Mt, Oxide Leach Area Project ($0.2bn) a new dynamic leaching pad and mineral handling system in 2014 maintaining oxide leaching capacity.New desalination facility to ensure continued water supply to Escondida in 2017	320	320	300	300	300	300	
Franke (SX-EW)	KGHM	Electrowinning	Operating	2009		Leach	Bought from Centenario Copper in April 2009. Started end 2Q09. Mine life 8Y. Problems with subcontractor in 2010. KGHM aquired Quadra Mining Ltd end 2011.	17	17	17	17	17	17	
Gabriela Mistral (Gaby) (SX-EW)	Codelco	Electrowinning	Operating	2008		Leach	Started April 2008. Cap 150ktpy Cu. Fase II expansion to 170ktpyto be reached in 2018. As of 1Jan 2013, Minera Gaby transformed in a new division of Codelco: División Gabriela Mistral	150	150	150	150	150	150	
Ivan/Zar (SX-EW)	Compania Minera Milpo	Electrowinning	Closed	1995	2013	Leach	In Jun 2012 announced an investment plan of US$170 million to upgrade the pan with the aim of reducing emissions by 33% until 2015. In Dec13, Chile's environmental court has rejected a request by public environment authority, SMA, for the temporary shutdown of Codelco's Ventanas division.	4	1					
La Cascada (Sagasca) (SX-EW)	Haldeman Mining Company	Electrowinning	Operating	1972		Leach	Was closed 2000. Restarted September 2004.	15	15	10	10	10	10	
Lomas Bayas (SX-EW)	Glencore plc	Electrowinning	Operating	1998		Leach	Expansion to 75ktpy in 08. 4Q 2012 commissioned Lomas II mine life extension project to keep production at 75ktpy Cu as ore from the new Fortuna de Cobre pit supplement declining volumes from the original pit. Lomas II extends the life by a further 16 years to at least 2028 at existing production levels. Possible development of the copper sulphide deposit located below the current pit to expand prod to 140ktpy Cu in the form of concs & cathodes and extend mine life to 2039. Estimated start in 2017. The project will use of seawater for its operation.	75	75	75	75	75	75	
Los Bronces (SX-EW)	Anglo Amercian 75.5%, Mitsubishi Corp. 24.5%	Electrowinning	Operating	1925		Leach		46	50	50	50	50	50	
Mantos Blancos/ Santa Barbara (SX-EW)	Anglo American	Electrowinning	Operating	1995		Leach	During 2010, the life of Mantos Blancos was extended by five years to 2020	30	30	30	30	30	30	
Mantos de la Luna (SX-EW)	Izquierdo Menendez Group	Electrowinning	Operating	2006		Leach	Started July 2006.	20	20	20	15	15	15	
Mantoverde (SX-EW)	Anglo American	Electrowinning	Operating	1995	2019	Leach	Could start producing concentrates in 2019. The desalination plant completed in 2014 meeting the current water requirements of the operation.	60	60	60	60	60	60	
Michilla (SX-EW)	Antofagasta Plc (74.2%), Grupo Cueto (17.8%), Others (8%)	Electrowinning	Operating	1992	2015	Copper ore/leach	Lince OP closed Jan09 due to low Cu price (UG continued) and restarted early 2010. Michilla's board approved an extension to its mine life from 2012 to 2015 and studies are continuing in respect of a further possible extension to 2018.	38	38	38	30			
Puquios (SX-EW)	Minera Las Pascualas	Electrowinning	Planned			Leach	Possible cap 15 ktpy (formerly Las Pascualas). Natasa Mining Ltd decided in 2008 not to proceed with the project.						0	15

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Thousand metric tonnes copper

Refineries	Operator/Owner(s)	Process	Status	Start Up	Date of Closure	Raw Materials	Short Remarks	2012	2013	2014	2015	2016	2017	Project Cap.
Quebrada Blanca (SX-EW)	Teck Resources Ltd 76.5%, Inversiones Mineras SA 13.5%, Enami 10%	Electrowinning	Operating	1994		Leach	Transitioning from a high grade heap leach operation to a lower grade dump leach operation with gradual reduction towards end of cathode prod in early 2019. Potential for transition to concs for additional 20years. Production from the hypogene expected at approx 200ktpy Cu in concs. Earliest construction start is 2016, which would enable production at end of 2019. Due to shallower pit wall angles and associated mining constraints production lower in 2012-2014. Progressing in updating the permits for the existing facilities and life extension of the supergene operation. The social and environmental impact assessment to extend cathode production to 2020 was submitted on July 2014. The review, response, consultation and approval process is assumed to take 12 months.	70	60	50	50	40	40	
Radomiro Tomic (SX-EW)	Codelco	Electrowinning	Operating	1998		Leach	From 2002 to 2010 included in Codelco Norte as in Nov2010 split of Codelco Norte Division into two independent divisions: Chuquicamata and Radomiro Tomic. Decline in oxide production from 2018 onwards and could start producing concentrates from the sulphide reserves. See Radomiro Tomic (Sulphides) project.	430	400	400	400	400	400	
Salvador (SX-EW)	Codelco	Electrowinning	Operating	1994		Leach	Originally due to close in 2011 was extended to 2021. Comprises the Inca UG mine & Campamento Antiguo and Damiana Norte OP mines. The San Antonio Oxido project expected to add 30ktpy cathode from mid-2015 during 24years but has been temporarily postponed and SX-EW production stopping in 2014.	25	16	10				
San Jose (Socavon) (SX-EW)	Sociedad Punta del Cobre (Pucobre)	Electrowinning	Operating	1994		Leach	Punta del Cobre and Manto de Cobre mines supply the San Jose Concentrator to produce around 100ktpy concentrates @ 29%Cu. Mina Venado Sur (open pit) supply the SX-EW plant that started in 1994 with a current capacity of around 10-12 ktpy cathode	12	12	12	12	12	12	
Sierra Miranda (SX-EW)	Sierra Miranda	Electrowinning	Closed	2007	2013	Leach		6	5					
Spence (SX-EW)	BHP Billiton	Electrowinning	Operating	2007		Leach	Combination of chemical and bacterial leaching for the oxide and sulfide ore. Mine life 2026. Spence Hypogene project could extend the mine life by over 50 years. Would result in the conversion of large hypogene resources into reserves. Could add approximately 150-200 ktpy of copper production for the first ten years post commissioning. No start up date announced.	190	190	190	170	170	170	
Taltal Oxidos (SX-EW)	Cia. Minera La Cenizas S.A.	Electrowinning	Operating	2011		Leach		5	5	10	10	10	10	
Tres Valles (SX-EW)	Inversiones Porto San Giorgio S.A (Vecchiola S.A)	Electrowinning	Operating	2010		Leach	Former Papomono. In Dec 2013 Vale sold it's 90% share to Inveriones Porto San Giorgio SA.	15	15	15	10	10	10	
Various Small mines (SX-EW)	ENAMI and Small Mine Owners	Electrowinning	Operating				Delivering to ENAMI.	38	38	38	60	60	60	

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Thousand metric tonnes copper

Refineries	Operator/Owner(s)	Process	Status	Start Up	Date of Closure	Raw Materials	Short Remarks	2012	2013	2014	2015	2016	2017	Project Cap.
Zaldivar (SX-EW)	Barrick Gold Corp.	Electrowinning	Operating	1995		Leach	A scoping study has been completed on the Zaldívar deep sulfides, and a prefeasibility study is underway with expected completion in 2014. This expansion opportunity has the potential to significantly increase annual mine production starting as early as 2019, increase copper reserves/resources and extend mine life.	140	130	130	120	120	120	
China			**Operating**					**123**	**123**	**123**	**123**	**123**	**123**	
SX-EW plants (various)		Electrowinning	Operating			Leach		100	100	100	100	100	100	
Yulong (SX-EW)	Quinghai Western Mining 41%, Fujian Zijin Mining 39%	Electrowinning	Operating	2009		Leach		3	3	3	3	3	3	
Zijinshan (SX-EW)	Zijing Gold & Copper	Electrowinning	Operating	2005		Leach		20	20	20	20	20	20	
Congo			**Operating**					**532**	**674**	**794**	**923**	**1,013**	**1,023**	
Congo			**Developing**							**40**	**90**	**90**	**90**	**90**
Congo			**Planned**										**0**	**230**
Congo			**Total Status**					**532**	**674**	**834**	**1,013**	**1,103**	**1,113**	**320**
Deziwa & Ecaille C (SX-EW)	Gecamines	Electrowinning	Planned				Gecamines ended joint venture with Copperbelt Minerals end 2012 and gained 100% control in the project. Gecamines plans to build a 200ktpy operation in two phases with both mines that combined have estimated reserves of 5MT copper and 400Kt Co. 1st phase is for a 80ktpy copper cathode plant and 8ktpy Co, for a mine life of 20Y						0	200
Etoile (SX-EW)	Chemaf (100% Shalina Resources) 99.04%, Shiraz Virji and Abbas Virji 0.96%	Electrowinning	Operating	2002		Leach	Etoile was mined by Gécamines until the 1960s and artisanal miners until 2000, when the Ruashi-Etoile concession was divided and offered to private investors. Chemaf was granted the rights to Etoile. Started small-scale mining in 2002 In 2007 bought the Mount Gordon Cu SX/EW and re-assembled it. Capacity of Usoke SX-EW plant is 31ktpy cathode. Mining at Mufunta deposit to start in 2015 and capacity could be expanded to 50ktpy. Currently processing oxide ore but when sulphide ore will be reached, using pyro-metallurgical techniques, the sulphide concentrate (from the flotation plant Q1 2015) will be converted to oxides (in the roaster Q2 2015) and treated at the Usoke plant.	24	31	31	35	40	50	
Huachin (SX-EW)	Sino-Metals Leach Zambia Ltd 30%	Electrowinning	Operating	2012		Leach	Hydrometallurgy plant started Feb 2012. Cap 10ktpy.	6	10	10	10	10	10	
Kakanda Proejct (SX-EW)	Greenrock Resouirces. (51%), Gecamines (49%)	Electrowinning	Planned			Leach	Adjacent to Tenke. The Kakanda tailings reprocessing project has NI 43-101 measured and indicated resources of 18.5 million tonnes @ 1.25% Cu and 0.15% Cot. Can produce around 30ktpy Cu.						0	30
Kamoto (SX-EW)	Katanga Mining Ltd (74.4% Glencore plc) 75%, Gecamines 25%	Electrowinning	Operating	2007	2040		Ore leached at Luilu, therefore not counted here						0	
Kinsevere Phase 2 (SX-EW)	Minmetals	Electrowinning	Operating	2011		Leach	60ktpy SX-EW plant to treat reject products from current operation put on hold Nov 08. Finance Agreement with Trafigra in Aug09 used to recommence construction. Startup 2Q2011. Operational 14Y. Minmetals aquired Anvil Mining in 2012	37	63	63	63	63	63	

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Thousand metric tonnes copper

Refineries	Operator/Owner(s)	Process	Status	Start Up	Date of Closure	Raw Materials	Short Remarks	2012	2013	2014	2015	2016	2017	Project Cap.
Kipoi (SX-EW)	Tiger Resources Ltd	Electrowinning	Operating	2014	2025	Leach	Hosts five copper deposits: Kipoi Central, Kipoi North, Kileba, Judeira and Kaminafitwe. Stage 1 with HMS plant started April 2011 ending early 2015. A Stage 2, SXEW plant started May 2014 capable of producing 538 Mt cathode over 11 years, processing ore reserves from the Kipoi Central, Kileba and Kipoi North deposits and reject floats, slimes and medium grade ore stockpiles from the Stage 1 HMS operation. Ore from Judeira and other deposits within the Kipoi Project area, as well as the Lupoto Project, will also be processed during the Stage 2 operations.			10	25	50	50	
Kolwezi Tailings (SX-EW)	Eurasian Natural Resources Corporation PLC 70%, DRC Government, Gécamines and Sociéte Immobiliére du Congo 30%.	Electrowinning	Developing	2014		Leach	RTR - Roan Tailings and Reclamation Project (formerly known as Kolwesi Tailings) with 1.7Mt Cu, 363Kt Co. Expected capacity 70 ktpy Cu. Mine life 22 yrs. Target prod Q210 but construction stopped Sep09 as licence was revoked by gov. Aug10 ENRC acquire 50.5% in Camrose that includes stake in the project. First Quantum disputes decision. On February 2010, commenced international arbitration. In Jan 2012 companies announced agreement, ENRC acquired project. Production to start H2 2014.			30	70	70	70	70
KOV (SX-EW)	Katanga Mining Ltd (74.4% Glencore plc) 75%, Gecamines 25%	Electrowinning	Operating	2014			Included in Luilu. This new plant along with Luilu will enable KCC to increase copper production capacity to 308kt.						0	
Luilu (leach plant)	Katanga Mining Ltd (74.4% Glencore plc) 75%, Gecamines 25%	Electrowinning	Operating	2007			Luilu refinery plant leaches Kamoto ores. Started Jul07. Expansion in 5 phases to 310kt by end 2014 with phase 5 currently under construction.	70	80	140	250	310	310	
Luita (SX-EW)	CAMEC (ENRC)	Electrowinning	Operating	2007		Leach	3 facilities: Luita SX/EW plant, Kakanda concentrator, Kambove acid plant. Put on C&M on Nov08. Restarted Apr09. Acquisition of CAMEC by ENRC in Nov09. New solvent extraction plant in 2013	100	100	100	100	100	100	
Mabende (SX-EW)	Sino-Metals Leach Zambia Ltd 60%, Congo Huachin 40%	Electrowinning	Developing	2014		Leach	Treats ore from the Mabende mine. Capacity 20ktpy cathode. Starts 2014.			10	20	20	20	20
Metalkol (KMT) (SX-EW)	Eurasian Natural Resources Corporation PLC 70%, DRC Government, Gécamines and Sociéte Immobiliére du Congo 30%.	Electrowinning	Developing				this is the same as Kolwesi Tailings							
Mutanda (SX-EW)	Glencore plc (54.5% indirect interest), High Grade Minerals S.A. 14.5%, Rowny Assets Ltd (Fleurette Properties Ltd) 31%	Electrowinning	Operating	2010	2024	Leach	Mutanda & Kansuki merged in Jul13. Mutanda mine life +20 years. Ore body in the form of sulphides lies below these reserves and are expected to extend life. 20Kt SXEW plant in 4Q10, 40Kt SXEW plant mid 2011 and expansion to 110kt in 1Q12 and with Kansuki expansion to 200ktpy Cu Dec 2013. Central OP (on hold), East OP and Central NW OP being mined. Three pits expected to consolidate into one large open pit by 2018.	90	150	200	200	200	200	
Ruashi II (SX-EW)	Metorex (Jinchuan Group) 80%, Gecamines 20%	Electrowinning	Operating	2008		Concs.	Mining of Ruashi open pit, expansion of concentrator and new SX-EW plant. Mine life 20+ years. Startup was delayed until Nov 08.	45	45	45	45	45	45	

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Tenke Fungurume (SX-EW)	Freeport-McMoRan Copper & Gold Inc. 56%, Lundin Mining. 24%, Gecamines 20%	Electrowinning	Operating	2009	2050+	Leach	Mine life 40 years. Started March 2009 with capacity of 115ktpy Cu and over 8ktpy Co in hydroxide. With subsequent debottlenecking and plant upgrades capacity increase to 132ktpy and 11kt Co. Phase 2 expansion to around 195ktpy Cu and 15kt Co completed in 2013. Sulphide development being evaluated. Further expansion planned with the aim of achieving production in excess of 400ktpy Cu. This is one of several stages of development with objective of ultimately producing around 500ktpy Cu mining multiple deposits concession-wide. A second sulphuric acid plant is expected to be completed in 2016.	160	195	195	195	195	195	
Cyprus			**Operating**					**6**	**6**	**6**	**6**	**6**	**6**	
Tamasos (Skouriotissa) (SX-EW)	Hellenic Copper Mines	Electrowinning	Operating	1996		Leach	Closed Dec-04 and reopened Jun-06.	6	6	6	6	6	6	
Finland			**Operating**					**10**	**10**	**10**	**10**	**10**	**10**	
Kokkola	Freeport-McMoRan Copper & Gold Inc.	Electrowinning	Operating	2002		Leach	Treats ores from abroad. Acquired by Freeport-McMoRan Copper & Gold Inc. in 2013	10	10	10	10	10	10	
Indonesia			**Operating**							**2**	**10**	**23**	**28**	
Wetar (SX-EW)	Finders Resources Ltd 85%	Electrowinning	Operating	2008, 2014			Demonstration plant started Dec 08 and temporarily shut down Feb 2011 pending final mining permits. Bought SX-EW pant from Whim Creek. The previous two stage expansion is superseded by a simpler construction plan involving the expansion of the existing Whim Creek SX-EW plant to 25ktpy. The demonstration plant was upgraded from 1.8ktpy to 3ktpy and started April 2014. SW-EW plant to start 2H2015. 8.9 Mt at 2.4% Cu for approx. 210kt contained copper			2	10	23	28	
Iran			**Operating**					**19**	**19**	**19**	**19**	**19**	**19**	
Iran			**Developing**									**3**	**5**	**8**
Iran			**Total Status**					**19**	**19**	**19**	**19**	**22**	**24**	**8**
Miduk (SX-EW)	National Iranian Copper Industry Co.	Electrowinning	Operating	2012		Leach	Production started May 2012.	5	5	5	5	5	5	
Sarchesmeh (SX-EW)	National Iranian Copper Industry Co.	Electrowinning	Operating	1997		Leach		14	14	14	14	14	14	
Nicico other SX-EW Plants	National Iranian Copper Industry Co.	Electrowinning	Developing	2016		Leach	Includes Sungun Bioleaching plant, cap. 5ktpy Cu that starts in 2016 and the planned Taft Copper Complex 3ktpy Cu SX-EW plant. Total agregated capacity 8ktpy Cu					3	5	8
Israel			**Developing**							**2**	**15**	**22**	**22**	**22**
Arava Mines (SX-EW)	AHMSA Steel Israel Ltd (Altos Hornos de Mexico)	Electrowinning	Developing	2014		Leach	Cap 22ktpy. Delayed to end 2014			2	15	22	22	22

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Kazakhstan			**Operating**					**8**	**13**	**15**	**17**	**19**	**22**	
Kazakhstan			**Developing**								**1**	**15**	**15**	**15**
Kazakhstan			**Planned**										**0**	**13**
Kazakhstan			**Total Status**					**8**	**13**	**15**	**18**	**34**	**37**	**28**
Aktogay (SX-EW)	Kazakhmys PLC	Electrowinning	Developing	2015	2026	Leach	Oxide zone 123 MT of ore @ 0.37% Cu, Sulphide zone 2064 MT of ore @ 0.33% Cu. Feasibility in 2012. Started construction in 2013. First oxide copper cathode production in 4Q2015 expected to operate for 11 years @ avg 15 ktpy. First sulphide copper in concentrate production by 2017 to average 90 ktpy in the first 10 years with a peak of approx 100 kt in 2019.				1	15	15	15
Benkala (SX-EW)	Frontier Mining Ltd 100% (KazCopper LLP)	Electrowinning	Operating	2012		Leach	Estimated 2.2 million tonnes of contained Copper. Capacity 7ktpy. Production started Aug 2012. Bankable Feasibility Study underway for development of Benkala sulphide resource.	1	3	5	7	7	7	
Karchiga (SX-EW)	Orsu Metals Corp. (94.75%)	Electrowinning	Planned	2018		Leach	Open pit. Concentrate production expected to start early 2015 @38ktpy Cu (conc grade 28%) and SXEW production to start in 2018 @12.7kt but might be delayed as of July 2014 company continuing to seek finance LOM 11.5 years.						0	13
Kounrad Mine refinery (SX-EW)	Central Asia Metals Plc 60%, Saryarka (gov) 40%	Electrowinning	Operating	2012		Leach	Kounrad mine operated from 1936 to 2005. Large low-grade wast dump dposit acumulated over 70 years of open-pit mining operations. Capacity 10ktpy cathodes plant started in Apr2012. Plans to expand capacity to 15ktpy in 2016.	7	10	10	10	12	15	
Laos			**Operating**					**90**	**90**	**90**	**90**	**90**	**90**	
Sepon (SX-EW)	Minmetals	Electrowinning	Operating	2005		Leach	Started Mar05. Expansion to 85ktpy in 2012. OZ Minerals sold asset to Minmetals in Jun09.	90	90	90	90	90	90	
Macedonia			**Operating**					**3**	**3**	**3**	**3**	**3**	**3**	
Bucim/Cukar/Vrsnik (SX-EW plant)	Solway Industries Ltd	Electrowinning	Operating	2011		Leach	Privatized in 01, bankrupted in 03, reopened in 05 with new owners. SX-EW plant started end 2011.	3	3	3	3	3	3	
Mexico			**Operating**					**190**	**195**	**210**	**290**	**315**	**315**	
Mexico			**Developing**							**10**	**40**	**66**	**95**	**95**
Mexico			**Planned**										**0**	**41**
Mexico			**Total Status**					**190**	**195**	**220**	**330**	**381**	**410**	**136**
Boleo (SX-EW)	Baja Mining Corp 49%, Korea Resources Group 51%	Electrowinning	Developing	2014		Leach	Cap of 56 ktpy Cu in first 6 years then 38 ktpy. Mine life 23 years. Construction was delayed due to global financial crisis.(Consortium: Korea Resources Corp., LS-Nikko Copper Inc., Hyundai Hysco Co. Ltd., SK Networks Co. Ltd. and Iljin Materials Co. Ltd). First copper production in Sep 2014 and cobalt/zinc production in Nov 2014.			10	40	56	56	56

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Table 4: WORLD COPPER ELECTROWINNING PRODUCTION CAPACITY 2012 To 2017

Thousand metric tonnes copper

Refineries	Operator/Owner(s)	Process	Status	Start Up	Date of Closure	Raw Materials	Short Remarks	2012	2013	2014	2015	2016	2017	Project Cap.
Buenavista del Cobre (former Cananea) (SX-EW)	Grupo Mexico	Electrowinning	Operating	1980		Leach	Former name was Cananea. Restarted Oct 2010 after more than 3 years strike. Expansion by approximately 175% from 180 to 495ktpy Cu by 2016: new 188ktpy Cu concentrator in 1H2015 and 2 additional leaching plants of 82kypy Cu total cap. Initially plant III of 32Kt in 4Q 2012 & plant IV of 50Kt in 2Q 2015 but decided to use equipment originally purchased for Tia Maria project allowing to cut delivery time. New SXEW III plant started June 14. Full capacity is expected to be reached in 4Q14, at 120ktpy cathode	55	55	70	150	175	175	
El Pilar (SX-EW)	Mercator Minerals	Electrowinning	Developing	2016	2029	Leach	Mine life of 13 years. Higher average production of 39kt Cu cathode for the first 5 years with a life-of-mine average production of 36ktCu. Mercator Minerals Ltd. and Intergeo MMC Ltd (Onexim Group) intend to merge with final decision to be taken in March 2014.					10	39	39
La Balsa (SX-EW)	Binhai Harbour Group HK Co., Limited	Electrowinning	Planned			Leach	Project43-101 Resource Study complete. Economic Scoping Study complete. Feasibility study suspended in May 2012 pending additional funding . Cap 10ktpy. Mine life 7Y. In July 2013 sold La Balsa project to Binhai Harbour Group HK Co., Limited						0	10
La Caridad (SX-EW)	Mexicana de Cobre S. A. (Grupo Mexico)	Electrowinning	Operating	1995		Leach		25	25	25	25	25	25	
Luz del Cobre (SX-EW)	Red Tiger Mining Inc.	Electrowinning	Operating	2012		Leach	Mine life 6Y. Develop. was suspended in Oct08, 4 months before start-up as available funding was insufficient to complete the development/plant construction. Production started in May 2012	3	8	8	8	8	8	
Milpillas (SX-EW)	Industrias Penoles SA	Electrowinning	Operating	2006		Leach	Started August 2006. Mine life 12 years.	55	55	55	55	55	55	
Minera Maria (SX-EW)	Minera Frisco	Electrowinning	Operating	2003		Leach	Closed underground operations in 1998 and reopened open pit in July 2003.	20	20	20	20	20	20	
Piedras Verdes (SX-EW)	Frontera Copper	Electrowinning	Operating	2006		Leach	Started Sep 2006. Mine life 18Y. Mining suspended Nov08 due to weak market conditions. In May09, Frontera was acquired by 0839073 BC Ltd., a wholly owned subsidiary of Invecture Group, S.A. de C.V. Restarted Oct09.	32	32	32	32	32	32	
San Javier (Cerro Verde area) (SX-EW)	Constellation Copper Corp.	Electrowinning	Planned			Leach	Possible prod of 22 ktpy cathode. Mine life 9 yrs. Company bankrupt. In Mar 2014 Benz Capital Corp. entered into non-biding proposal to buy 100% interest in the project and to start a feasibility study by end 2014.						0	22
Terrazas (Cerro Verdo area) (SX-EW)	Constellation Copper Corp.	Electrowinning	Planned			Leach	Possible capacity of 9 ktpy of cathode. Company bankrupt						0	9
Mongolia			**Operating**					**3**	**3**	**3**	**3**	**3**	**3**	
Mongolia			**Planned**										**0**	**25**
Mongolia			**Total Status**					**3**	**3**	**3**	**3**	**3**	**3**	**25**
Erdenet (SX-EW)	Erdenet Mining & Concentrating (EMC)	Electrowinning	Operating			Leach	Operated by Erdmin Co., a Mongolian and American Joint Venture.	3	3	3	3	3	3	

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Erdenetin-Ovoo (SX-EW)	Samsung 51%, Erdenet 49%	Electrowinning	Planned				Based on oxide and secondary sulfide ores. Capacity 25,000t cathode.						0	25
Myanmar			**Operating**					**20**	**25**	**25**	**30**	**40**	**40**	
Myanmar			**Developing**								**25**	**100**	**100**	**100**
Myanmar			**Total Status**					**20**	**25**	**25**	**55**	**140**	**140**	**100**
Letpadaung (SX-EW)	Wanbao Mining Copper Co.(China North Industries Corp. - Norinco holds 60%)	Electrowinning	Developing	2015		Leach	Cooperation agreement with government signed on Jun10 to develop the Letpadaung deposit of the Monywa complex that contains three deposits. Expected production of 100ktpy. China Nerin Engineering Co. Ltd responsible for the design of the project. Facing local oposition				25	100	100	100
Monywa (SX-EW)	Wanbao Mining Copper Co.(China North Industries Corp. - Norinco holds 60%)	Electrowinning	Operating	1998		Leach	Switched from concentrates to SX-EW in 1998. Ivanhoe Mines (50%) divested from the mine in Feb 2007 to a Trust. Other 50% held by government. Operational problems reduced production. Closed 2008 reopened 2009. Currently explores two of the three deposits of the Monywa complex (other deposit is Letpadaung). In 2010 Monywa complex was purchased 100% by Wanbao Mining that is developing the Letpadaung deposit. Expansion to 40ktpy in 2015.	20	25	25	30	40	40	
Namibia			**Developing**								**7**	**17**	**17**	**17**
Namibia			**Planned**										**0**	
Namibia			**Total Status**								**7**	**17**	**17**	**17**
Haib (SX-EW)	Teck Resources Ltd, Afri-can Marine Minerals Corp.	Electrowinning	Planned			Leach	The ore contains an average of 3% to 4% pyrite, which is ideal for bio-heap leaching. The pyrite, being a good heat generator, helps to increase recovery rate.						0	
Tschudi (SX-EW)	Weatherly Mining Namibia (Weatherly International Plc 97%)	Electrowinning	Developing	2015		Leach	Underground mine operated from Oct 2007 to Dec 2008. Start of construction of opencast mine with SX/EW processing plant in Dec 2013. First cathode copper expected Q2 2015. Expected capacity at 17ktpy cathode, mine life 11 years.				7	17	17	17
Peru			**Operating**					**123**	**123**	**123**	**123**	**123**	**123**	
Peru			**Developing**							**10**	**50**	**50**	**70**	**170**
Peru			**Planned**								**5**	**50**	**50**	**350**
Peru			**Total Status**					**132**	**128**	**133**	**178**	**223**	**243**	**520**
Cerro-Negro (SX-EW)	Freeport-McMoRan Copper & Gold Inc.	Electrowinning	Operating	2012		Leach	Considered as Cerro Verde reserves. Restart mining 2012.						0	
Cerro Verde I Leach Pad (SX-EW)	Freeport-McMoRan Copper & Gold Inc. 53.5%, Compañia de Minas Buenaventura 18.5%, Sumitomo 21%	Electrowinning	Operating	1977		Leach		80	80	80	80	80	80	
Chapi (SX-EW)	Compañia Minera Milpo (Minera Pampa de Cobre)	Electrowinning	Operating	2006		Leach	Started Jan2006. Mine life 14 years. Undergoing studies for the Chapi Sulphides project to produce concentrates . Temporary suspendion since 2013 but plans to restart prod in 2015.	8	8	8	8	8	8	

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Thousand metric tonnes copper

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Coroccohuayco (SX-EW)	Glencore plc	Electrowinning	Planned	2015		Leach	Deposit is being evaluated as a potential open pit satellite mine to expand production further at Antapaccay. Production utilising Tintaya Sx-Ew infrastructure. Mineral Resource of 290 Mt @ 1.03% copper. Potential copper production of up to 100ktpy. LOM 25+ years.				5	50	50	50
La Granja (SX-EW)	Peruvian Government (Rio Tinto is exploring the project)	Electrowinning	Planned	2019		Leach	Inferred resource of 3.6 billion tonnes at 0.51% copper. Mine life of 40 years, Average peak production over 500 ktpa. Several development pathway options. Pre-feasibility on Phase 1 in 2014 of 80ktpy production. Phase 2 development could see capacity rising to 140ktpy and further expansions couls increase total production to 500ktpy						0	300
Lunahuana (SX-EW)	Cadente Copper Corp.	Electrowinning	Planned			Leach	potential for SX-EW						0	
Mina Justa (SX-EW)	Marcobre (Minsur 70%, Korean partners 30%)	Electrowinning	Developing	2014		Leach	Marcona Copper Project. Expected prod 60ktpy Cu in concs & 50ktpy cathode. Mine life 11.5Y. SX-EW prod starts in 2014 & concs in 2015. Charriot Resources taken over by CST Mining in Jun10. EIA approved in Sep 2010. In 2012 CST sold stake to Minsur			10	50	50	50	50
Tia Maria (SX-EW)	Southern Copper Corp. (Grupo Mexico)	Electrowinning	Developing	2017		Leach	Cap 120ktpy. Startup delayed from 2011 to end 2012 but project suspended by governmental action in April 2011 in light of social protests and environment study was rejected by government. Equipment already ordered was redirected to Buena Vista del Cobre expansion (Mexico). End 2013 submitted the new EIA to MINEM. Company expects to receive approval of this study in 3Q 2014 and resume work on the project, with the goal of production start-up late in 2016 but risk of further delays.						20	120
Tintaya (SX-EW)	Glencore plc	Electrowinning	Closed	2002	2013	Leach	End of life 1Q2013. Antapaccay and Coroccohuayco utilizing Tintaya infrastructures.	9	5					
Toquepala (SX-EW)	Southern Copper Corp.	Electrowinning	Operating	1995		Leach	Expansion project: increase in milling capacity of 60ktpd that should increase concentrate production by 100ktpy Cu and 3,100 tons of Mo. The EIA was presented to MINEM in July 2011. Company expect to get approval of the EIA by end 2014	35	35	35	35	35	35	
Philippines			**Planned**										**2**	**70**
King King (SX-EW)	St Augustine Gold & Copper Ltd	Electrowinning	Planned	2017		Leach	Proven and probable mineral reserve of 617.9Mt at 0.3% Cu and 0.395 g/t Au. Avg annual production of copper contained in concentrates at 52kt in years1-5 and 42kt in LOM and 70kt cathode in years 1-5 and 50kt in LOM. Mine life 22 years, concentrate production starts 2018 and cathode in 2017.						2	70

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Russia			**Developing**											
Russia			**Planned**											**450**
Russia			**Total Status**					**20**	**20**	**20**	**20**	**20**	**18**	**450**
Gumeshevskoye (SX-EW)	Uralgidromed (Russian Copper Company)	Electrowinning	Operating	2005			Hydrometallurgical plant started Sep 05 at depleted mine Gumeshevskiy in Sverdlovsk region. Capacity 5ktpy cathodes. To operate for 12 years.	5	5	5	5	5	3	
Murmansk (SX-EW)	Norilsk Nickel (Kola MMC)	Electrowinning	Operating	2003		Leach		15	15	15	15	15	15	
Udokan (SX-EW)	MetalloInvest	Electrowinning	Planned	2020		Leach	Metalloinvest won development licence in Sep08. Baikal Mining Company is the operator. 2.75 bl tons of ore @ 0.97% Cu for a copper resource of 27Mt. Reserves of 16Mt. Planned 1st stage development of 150ktpy Cu SX-EW by 2014 increasing to 500ktpy by 2016 but start-up delayed. In May 2014 signed a Strategic Cooperation Agreement with HOPU Investments private equity firm regarding arrangement of project financing and attraction of equity and long-term debt financing. Plans to form an investment Consortium with HOPU comprising major Chinese players in the industrial sector and financial institutions.							450
South Africa			**Operating**					**22**	**22**	**22**	**22**	**22**	**22**	
Impala Platinum (EW)	Impala Platinum Ltd.	Electrowinning	Operating			Matte		7	7	7	7	7	7	
Marikana/ Transvaal (SX-EW)	Western Platinum (Lonmin Platinum)	Electrowinning	Operating	1985		Pt ores		2	2	2	2	2	2	
Rustenburg/ Amandelbult (SX-EW)	Anglo American Platinum Corp.	Electrowinning	Operating			Matte		13	13	13	13	13	13	
Spain			**Operating**					**70**	**70**	**70**	**70**	**70**	**70**	
Las Cruces (SX-EW)	First Quantum Minerals Ltd	Electrowinning	Operating	2008	2022	Leach	Started May 08. SX-EW plant delayed to Mar 09 due to suspension of autorization of DRS in May08. May produce ore for smelters depending on market conditions. Mine life as of Dec 2013 is 9 years	70	70	70	70	70	70	
Thailand			**Planned**										**0**	**30**
Puthep (SX-EW)	PanAust Ltd 51%, Padaeng Industry Co. 49%	Electrowinning	Planned			Leach	Targetting 25-30ktpy cathode. Mine life 8 years.						0	30
United States			**Operating**					**761**	**757**	**751**	**752**	**742**	**741**	
United States			**Developing**									**2**	**6**	**6**
United States			**Planned**									**25**	**51**	**133**
United States			**Total Status**					**761**	**757**	**751**	**752**	**769**	**798**	**139**
Bagdad (SX-EW)	Freeport-McMoRan Copper & Gold Inc.	Electrowinning	Operating			Leach	Concentrate leach converted to Molybdenum production in 2009	12	12	12	12	12	12	

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Carlota (SX-EW)	KGHM	Electrowinning	Operating	2008		Leach	Carlota was implementing a mine closure plan and was expected to continue mining through Q2 2014 and residual leaching operations until 2017.	34	34	20	15	15	10	
Chino (Santa Rita) (SX-EW)	Freeport-McMoRan Copper & Gold Inc.	Electrowinning	Operating	1988		Leach	Mining put on C&M end 2008; only risidual leach continued from existing leach stockpiles. 2010 restarted mining and milling activities and planned rates are expected to be achieved by the end of 2014.	55	55	55	55	55	55	
Chloride Copper Mine (Emerald Isle) (SX-EW)	Sierra Resources Group Inc.	Electrowinning	Developing	2016		Leach	Former Arimetco plant (2004). Planned upgrade to 4ktpy. Expected to start in 2014 but delayed.					1	4	4
Florence (SX-EW)	Curis Resources Ltd	Electrowinning	Planned	2016		Leach	Insitu SXEW, Former BHP project with prefeasibility conducted 1999. Cursis prefeasibility study conducted in Q1 2013. Possible capacity of 35ktpy cathode.					20	35	35
Idaho Cobalt Project (SX-EW)	Formation Capital Corp.	Electrowinning	Developing	2016		Leach	Construction begun 1st Q10. Startup slated 1Q2014. Capacity 2ktpy. In May, 2013, construction was suspended owing to weak cobalt prices and volatile market conditions.					1	2	2
Johnson Camp (SX-EW)	Nord Resources	Electrowinning	Operating	1990		Leach	Closed 2003. New ore leaching began feb 2009, suspended in Jul 2010. Production from residual leaching. If new financing is obtained, production capacity could be increased to about 11,500 t/yr.	5	4	3	12	12	12	
Lisbon Valley (SX-EW)	Lisbon Valley Mining Co. (formerly Constellation Copper Corp.)	Electrowinning	Operating	2006		Leach	Started April 06. Mining suspended Nov 07.Filed for bakruptcy protection in 2008. Risidual leach only. New mining began 2010. Former Constelation Copper Corp.	10	10	10	10	10	10	
Miami (leach)	BHP Copper Co.	Electrowinning	Operating			Leach		3	2	2	2	2	2	
Miami (sx-ew)	Freeport-McMoRan Copper & Gold Inc.	Electrowinning	Operating	1968		Leach	Mining ceased 01and prod continued from residual leach. Planned restart of Miami mine deferred in late 08 due to weak market conditions. 4Q09 initiated plans to restart prod. When reserves depleated wil switch to residual leach.	50	50	50	50	40	40	
Milford (SX-EW)	CS Mining	Electrowinning	Operating	2009		Leach	Multiple deposits in Milford area. Concs, SX-EW, vat leach and dump leach. Conc prod started Jul09. SX-EW production in 2nd phase. Filled for bankruptcy in May 2010. Acquisiition of the mining assets of Western Utah Copper Company and Copper King Mining Corporation in August of 2011. CS Mining intends to improve the efficiency of the flotation mill, construct a new tailings pond and complete additional metallurgical testing within 3-4 months prior to the restart of operations						4	
Mineral Park (sx-ew)	Mercator Minerals Ltd	Electrowinning	Operating	1994	2033	Leach	Expanded in 2006. Reduced capacity owing to lower mining rate with startup of concentrate prod. Mercator Minerals Ltd. and Intergeo MMC Ltd (Onexim Group) merged in 2014.	5	3	3	3	3	3	
Morenci (SX-EW)	Freeport-McMoRan Inc 85%, 15% affiliates of Sumitomo Corporation	Electrowinning	Operating	1987		Leach	Concentrate production/leach placed on C&M end 2008 and mining rate reduced by 50%. Mar10 restarted Morenci mill that was shut down in Feb09. Expantion of mining and milling capacity to process additional sulfide ores targeting incremental annual production approx 100kt Cu in 1H 2014	350	350	350	350	350	350	

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Nokomis (SX-EW)	Twin Metals Minnesota ltd (JV Duluth Metals Ltd 60%, Antofagasta Plc 40%)	Electrowinning	Planned			sx-ew, platsol process	Indicated reserves: 13.7 billion lbs copper, 4.4 billion lbs nickel, and 21.2 million ozs palladium+platinum+gold (TPM). Projected at 82 ktpy Cu. Jan10, Antofagasta acquired 40% in Nokomis funding US$130 million on exploration/feasibility over 3 years. In July 2014 Antofagasta terminated the option to acquire an additional 25%. Pre-Feasibility study expected in 2014. Estimated startup after 2020						0	82
Phoenix (USA) (SX-EW)	Newmont Mining Corp	Electrowinning	Operating	2013		Leach	Production of around 10ktpy Cu in the first 5 years. Life of mine 25 years. Treats waste ore		1	10	10	10	10	
Pinto Valley (SX-EW)	Capstone Mining Corp.	Electrowinning	Operating		2026	Leach	Restarted mill 4Q 2007. Cessation of sulphide mining in Feb09 (C&M) and restarted 4Q2012. SX-EW continues operating with residual leaching. Sold by BHP Billiton to Capstone Mining Corp. in October 2013. Preliminary Feasibility Study to extend mine life by 8 years to 2026 completed in March 2014.	3	2	2	2	2	2	
Ray (SX-EW)	Asarco (Grupo Mexico)	Electrowinning	Operating	1974		Leach		47	47	47	47	47	47	
Safford (SX-EW)	Freeport-McMoRan Copper & Gold Inc.	Electrowinning	Operating	2008		Leach	Started early 2008. 50% reduction in mining due to weak market conditions (Jan 09). 2010 production levels back to normal.	110	110	110	110	110	110	
Sierrita (SX-EW)	Freeport-McMoRan Copper & Gold Inc.	Electrowinning	Operating	1987		Leach	Reserve depletion 2009. Production from residual leach	2	2	2	2	2	2	
Silver Bell (SX-EW)	Grupo Mexico	Electrowinning	Operating	1997		Leach	Producing over design capacity.	22	22	22	22	22	22	
Tohono (Casa Grande) (SXEW)	Freeport-McMoRan Copper & Gold Inc.	Electrowinning	Operating	1984		Leach	Restarted 1st April 2005. Put on C&M in 2009.	3	3	3				
Tyrone Leach (SX-EW)	Burro Chief Copper Co. (Freeport-McMoRan Copper & Gold Inc.)	Electrowinning	Operating	1984		Leach	Operating at reduced mining rate to extend limited reserves. 50% reduction in mining due to weak market conditions (Jan 09)	50	50	50	50	50	50	
Van Dyke (SX-EW)	Copper Fox Metals Inc.	Electrowinning	Planned			Leach	On 2012, Bell Copper sold project to Copper Fox Metals Inc.						0	
Zonia (SX-EW)	Redstone Resources Corp.	Electrowinning	Planned	2016		Leach	Brownfield project. Final feasibility end 2010 for 16ktpy SX-EW. Formerly Copper Mesa Mining Corp					5	16	16
Zambia			**Operating**					**371**	**438**	**443**	**443**	**443**	**443**	
Zambia			**Developing**							**3**	**28**	**65**	**123**	**123**
Zambia			**Planned**										**0**	**6**
Zambia			**Total Status**					**371**	**438**	**446**	**471**	**508**	**566**	**129**
Bwana Mkubwa (SX-EW)	First Quantum Minerals	Electrowinning	Closed	1998	2010	Leach	Treated Lonshi ore (DRC) that closed Aug 08. Placed on C&M in Oct 08. Restarted Jan10 to process Lonshi stockpiled ore until 3Q 2010 and closed. SX-EW plant to be used at Kansanshi expansion.							
Chambishi (SX-EW)	Sino-Metals Leach Zambia Ltd	Electrowinning	Operating	2004		Leach	Chambishi Leach Plant, 2004, cap 7ktpy cathode: Mineral resource sources from stripped waste rock, oxidized ore, taillings of heap leaching and flotation taillings from the Chambishi mining area. Chambishi Processing Plant, May 2011, cap 2.5ktpy Cu in concs: Treats oxidized ore from Chambishi West Mine, waste rock and expected to treat oxidized ore from Mwambashi.	8	8	8	8	8	8	

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Chingola Refractory Ore (SX-EW)	Konkola Copper Mines (Vedanta 51%, Zambia Copper Investments Ltd. (ZCI) 28.4%, ZCCM 20.6%)	Electrowinning	Developing	2016			CRO has been stockpiled at Nchanga since 1955 containing 150MTore @ 8%Cu. Project under review. Capacity 50ktpy Cu.					25	50	50
Ichimpe (SX-EW)	Zhonghui Mining Group	Electrowinning	Developing	2014		Leach	Expected startup in 2014 at a capacity of 35ktpy Cu cathode			2	25	35	35	35
Kakoso (SX-EW)	Sino-Metals Leach Zambia Ltd 88%, Shenzen Resources Ltd 12%	Electrowinning	Developing	2014		Leach	Taillings deposit @0.6% Cu. Cap 3ktpy. Mine life 12years. Starts 2014.			1	3	3	3	3
Kangaluwi-Chisawa (SX-EW)	Zambezi Resources, Ltd	Electrowinning	Developing	2016		Leach	The Kangaluwi, Chisawa and Kalulu are three prospects within the Kangaluwi Copper Project. 46 Mt @ 0.67% Cu for 300 kt contained copper from the Kangaluwi, Chisawa and Kalulu deposits. Bankable Feasibility Study in 2012. 35ktpy cathode, mine life 5Y. Startup expected for 2014 but delayed as Environmental Impact Study was rejected. Company appealed to overturn the rejection.					2	35	35
Kansanshi (SX-EW)	First Quantum Minerals Ltd (80%), ZCCM (20%)	Electrowinning	Operating	2004		Leach	Multi Phases Expansion: Phase1 in 2012, from 250 to 285ktpy Cu, expanding oxide circuit capacity and building in flexibility to allow for the mixed and sulphide circuits to be switched as needed to suit mining activity. Using relocated equipment from Bwana Mkubwa closed SX/EW plant and new installations. Further expansion of oxide circuit to 14.5Mtpa completed Nov 2013. Full utilization of this SXEW processing capacity once the new copper smelter is in operation providing sulphuric acid. Due to the high cost of exporting concs the completion of the sulphide expansion has been defered until 2017 when the smelter capacity is also expanded . At conclusion total mine capacity of 400ktpy Cu.	110	110	110	110	110	110	
Mashiba (SX-EW)	Luanshya Copper Mines (80% China Nonferrous Metals Mining Co, 20% ZCCM Investment Holdings)	Electrowinning	Planned			Leach	Included in Muliashi						0	6
Mufulira & Nkana (SX-EW)	Mopani Copper Mines plc. (First Quantum Minerals Ltd 16.9%, Glencore plc 73.1%, Zambia Consolidated Copper Mines Ltd. - ZCCM 10%)	Electrowinning	Operating	2000		Leach	Includes 2 plants at Mufulira and 2 plants at Nkana. Expansion to 100ktpy by end 2008.	100	100	100	100	100	100	
Muliashi (SX-EW)	Luanshya Copper Mines (80% China Nonferrous Metals Mining Co, 20% ZCCM Investment Holdings)	Electrowinning	Operating	2012		Leach	Cap 40ktpy Cu. Start-up planned for end 2009 but delayed to Dec 2011. Prod started Mar2012. Mine life 13Y. CNFM bought 80% in Luanshya Mines in May09.	18	35	40	40	40	40	
Nchanga TLP (SX-EW)	Konkola Copper Mines (Vedanta 51%, Zambia Copper Investments Ltd. (ZCI) 28.4%, ZCCM 20.6%)	Electrowinning	Operating	1975			Oct09 opened one of the Tailings dumps for processing through TLP operation. Expansion comissioned in 2012. Trated Fitwaola ore.	100	130	130	130	130	130	
Nkana Slag Dumps/ Chambishi Cobalt Plant (SX-EW)	Eurasian Natural Resources Corporation PLC (ENRC) 90%, ZCCM Investments Holdings PLC 10%	Electrowinning	Operating	2001		Leach	Roast leach EW plant, electric arc furnace, pressure leach plant, slag dump 16.6MT avg 1.10% Cu. Put on C&M in Jan09 due to market conditions and sale of Luanshya mine that was providing feed. Re-started Nov09. Bought by ENRC in 2010. Exp in 2012 to 55kt	30	55	55	55	55	55	

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Table 4: WORLD COPPER ELECTROWINNING PRODUCTION CAPACITY 2012 To 2017

Thousand metric tonnes copper

Refineries	Operator/Owner(s)	Process	Status	Start Up	Date of Closure	Raw Materials	Short Remarks	2012	2013	2014	2015	2016	2017	Project Cap.
Sable Zinc	Glencore plc	Electrowinning	Operating	2006		Concs.	Treats Ruashi stockpiles (DRC). After Ruashi Phase II implemented may toll treat concs for third parties. Sold by Metorex to Glencore in Sep 2011.	5						
Zimbabwe			**Operating**					**7**	**7**	**7**	**7**	**7**	**7**	
Eiffel Flats	Rio Tinto Mining (Zimbabwe) Ltd.	Electrowinning	Operating			Cu/Ni matte		7	7	7	7	7	7	
World			**Operating**					**4,666**	**4,831**	**4,927**	**5,100**	**5,191**	**5,198**	
World			**Developing**							**65**	**287**	**520**	**635**	**738**
World			**Planned**								**5**	**82**	**120**	**1,763**
World			**Closed**					**19**	**11**				**0**	
World			**Total Status**					**4,685**	**4,842**	**4,992**	**5,392**	**5,793**	**5,953**	**2,501**

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SEAFLOOR EXPLORATION - Update on off-shore copper exploration projects

Location	Zone/Name	Type of Deposit	Operator	Other Metals	Status	Short remarks
Pacific Ocean - International waters mid way between Mexico and Hawai	Clarion-Clipperton Fracture Zone International Seabed Area (CCFZ)	Major deposits of polymetallic nodules, rich in copper, nickel, manganese and cobalt in depths between 4500 and 6000 metres.	Government of the Kingdom of Tonga through Tonga Offshore Mining Ltd (100% Nautilus Minerals Inc.)		Exploration (15 years contract signed with ISA* in 2011)	This marine area beyond the limits of national jurisdiction is one of a number of reserved areas earmarked for developing countries . The Kingdom of Tonga and Nauru are the only two countries so far to have benefited from a clause in the United Nations Convention on the Law of the Sea that reserves areas of the international deep seabed area for use by a developing State entity. Tonga and Nauru are undertaken exploration work with Nautilus Minerals Inc and Nauru Ocean Resources Inc respectivelly. In March 2013, Nautilus issued an updated technical report for the Project providing additional information on methodology and mineralisation. www.nautilusminerals.com In October 2013 Nautilus announces that it has completed a successful polymetallic nodule exploration program to the Clarion Clipperton Zone. The work was carried out over a contract area in the CCZ solely owned by Nautilus' 100% subsidiary Tonga Offshore Mining Limited (TOML) and utilised multibeam sonar to map the bathymetry and distribution of polymetallic nodules containing nickel, copper, cobalt and manganese, an important step for focusing future work to better defining the resource estimate and to enable the commencement of engineering studies.
			Government of Nauru through Nauru Ocean Resources Inc (wholly owned by the Nauru Education and Training Foundation and the Nauru Health and Environment Foundation)		Exploration (15 years contract signed with ISA* in 2011)	
			DeepGreen Resources Inc.	Ni, Co, Mo, Mn	Feasibility	Canadian company exploring Cu-Ni seafloor nodules in the International Waters mid-way between Hawai and Mexico (4.5Km deep). Possible annual production of 50kt Cu. Mine life 50 years. Oxide ore. 500 million tonnes (dry) @ 1.3% Ni, 1.1% Cu, 29% Mn, 0.2% Co & 0.05% Mo. Will produce metal directely.
Mid-Atlantic Ridge		Polymetallic Sulphides deposits	Russian Federation (Ministry of Natural Resources and the Environment)		Exploration (15 years contract to be signed shortely with ISA*)	
Southwest Indian Ridge		Polymetallic Sulphides deposits	China (China Ocean Minerals Resources Research and Development Association (COMRA)		Exploration (15 years contract signed with ISA* in 2011)	
Red Sea	Atlantis II Red Sea Deeps	Marine sedimentary exhalative (SEDEX) deposit	Diamond Fields International Ltd and Manafa International	Zn, Ag, Au, Co, Ca, Mg, Pb	Feasibility	Approximately 115 km west of Jeddah. The Atlantis basin is comprised of four interlinked sub-basins lying approximately 2,000 meters below sea level. Base and precious metal mineralization contained within the sediments.Higher grade copper, zinc and silver mineralization is contained within the South West, West and Eastern sub-basins where metre core intersects of up to 22.47% zinc, 2.05% copper and 338 g/t silver have been obtained. Historic resource estimates reference the presence of significant co-product metal values including manganese, lead, cobalt, cadmium and gold.
	Red Sea deep		Sudan and Saudi Arabia	Cu, Ag, Au	mutual exploration agreement	The Arab states of Sudan and Saudi Arabia are going ahead with their plans to start mining for gold, copper, silver and other riches along the Red Sea basin by 2014. The joint effort, unveiled in November 2012, restores a mutual agreement signed in 1974, which gives the nations shared rights to exploit the Red Sea's resources, reports GreenProphet.com.
Bismarck Sea (Papua New Guinea)	Solwara 1 Project	Seafloor Massive Sulphide (SMS) Deposits at 1600 metres water depth	Nautilus Minerals Inc (Anglo American 11%, Teck Cominco 6.8%, Epion Holidngs 21%)	Au	Feasibility	Deep sea Cu/Au project. Prod from onshore facility. Concs @ 28% Cu. Project delayed due to weak market conditions. Possible prod 80ktpy Cu. Environmental Permit for the development received on Dec09. Company in dispute with the Gov of PNG and decided to stop construction delaying start up expected for 2014. In Oct 2013 the arbitrators' award included an order that the State is required to comply with its obligations. In April 2014 agreement signed enabling the Solwara 1 Project to move forward toward production with the full support of the State. Under the Agreement, the State shall take an initial 15% interest in the Project. The State has the option to take up to a further 15% interest within 12 months of the Agreement becoming unconditional.

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- **COPPER SCRAP MARKET IN JAPAN (2009), CHINA's SCRAP USAGE SURVEY (2009), DOMESTIC COPPER SCRAP GENERATION IN CHINA, 2010-2015 (2009), CHINESE COPPER SCRAP MARKET (2009) AND THE COPPER SCRAP MARKET IN INDIA (2009)**, Acknowledging the importance of the copper scrap market, ICSG commissioned reports about scrap that provide useful information on **three critical copper markets: Japan, India and China.** The Japanese Report by MERI/J, provides a comprehensive overview of the Japanese refined copper and copper scrap markets and also covers Japanese copper scrap trade, material flows, how scrap is categorized and relevant regulations. The Chinese Reports, prepared by BGRIMM, respectively give better insight into scrap usage in China at the smelters/refineries and fabricators and forecast domestic scrap generation in China. The Chinese Copper Scrap market Study was prepared by Beijing Antaike Information Development Co., Ltd, and the Indian Study by the India Copper Development Centre.
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