

# **International Copper Study Group**

**[www.icsg.org](http://www.icsg.org)**

## **DIRECTORY OF COPPER MINES AND PLANTS 2000 to 2005 January 2002 Edition**

© 2002 International Copper Study Group  
Rua Almirante Barroso, 38-6  
1000-013 Lisbon, Portugal

## FOREWORD

This Directory serves two purposes mainly. It 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 over 700 existing and planned copper mines, plants, 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 and Planned (Exploration & Feasibility) stages.

The Directory shows capacity projections for up to five years. These projections 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 issues are published on a quarterly basis.

Each issue contains a long-term development of capacities (20 years) for World totals broken down into production processes applied. Summary data for each country cover a period of ten years. The tables with the details of the operations show the capacities for a base year and the projection of the capacities for five 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.

## NOTE TO READERS

The contents of this report may not be photocopied, scanned into electronic form, or otherwise reproduced in whole or in part, without express permission of the International Copper Study Group. Reasonable extracts are permitted for the purpose of comment or review, provided the International Copper Study Group is acknowledged as the source.

All enquiries relating to this publication should be addressed to Dr. Thomas Baack, Chief Statistician.

Latest Update: 31 January 2002

International Copper Study Group  
R. Almirante Barroso 38-6º , 1000-013 Lisbon, Portugal  
Tel: 351 21 351 3870  
Fax: 351 21 352 4035  
e-mail: baack@icsg.org

### Disclaimer:

This report is prepared for information purposes. The information contained herein is believed to be reliable, but its completeness and accuracy is not guaranteed. We do not accept any liability, whether direct or indirect arising from the use of information contained in this report.

<u>CONTENTS</u>	PAGE
Special Note on Operational Capacity and Inactive Capacity	I
Definitions	II
Summaries:	
Figure 1, Trends in Mine Capacities 1985 to 2005	III
Figure 2, Trends in Smelter Capacities 1985 to 2005	IV
Figure 3, Trends in Refinery Capacities 1985 to 2005	V
Table 1, Mine Capacities: Country Totals 1995 to 2005	VI
Table 2, Smelter Capacities: Country Totals 1995 to 2005	VII
Table 3, Refinery Capacities: Country Totals 1995 to 2005	VIII
Table 4, Electrowinning Capacities: Country Totals 1995 to 2005	XI
Detailed Tables:	
Table 5, World Copper Mines Capacities 2000 to 2005	1
Table 6, World Copper Smelters Capacities 2000 to 2005	42
Table 7, World Copper Refineries Capacities 2000 to 2005	56
Table 8, World Copper Electrowinning Capacities 2000 to 2005	77
Operations Update	86

### Special Note on Operational Capacity and Inactive Capacity

Readers should note the following changes to the Directory: Mine and plant Capacities in this issue of the Directory have been revised to include capacity at some facilities whose capacity was previously omitted owing to inactivity or temporary curtailment.

Accordingly, 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 our 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. The table below shows the swing capacity identified by ICSG, at both closed facilities and facilities with announced cutbacks. These capacities have been included as available capacity in 2002 and beyond in our Directory.

	Operation	Owner	Mines	Smelters 1,000t Cu	Refineries	status
<u>Canada</u>	Mt. Polley	<i>Imperial Metals</i>	15			c&m since 2001
<u>China</u>	Shuikoushan		6			c&m since 2000
<u>Spain</u>	Almagrera	<i>Navan Resources</i>	10			c&m since 2001
<u>United States</u>	Johnson Camp	<i>Nord Resources</i>	6			c&m
	Chino	<i>Phelps Dodge</i>	145		55	c&m
	Miami		50		50	c&m
	Miami			180	172	c&m
	Continental East	<i>Asarco</i>	50			c&m since 2000
<u>Zambia</u>	Chibuluma South	<i>Metorex</i>	16			c&m since 2001
Total Care & Maintenance			298	180	277	
<u>Canada</u>	Myra Falls	<i>Boliden Westmin</i>	4			temporary cutback
<u>Chile</u>	Chuquicamata	<i>Codelco</i>	47			temporary cutback
	Salvador		11			temporary cutback
	Andina		23			temporary cutback
	El Teniente		25			temporary cutback
	Escondida	<i>BHP Billiton</i>	40			temporary cutback
<u>Peru</u>	Tintaya		45			temporary cutback
<u>United States</u>	Amarillo	<i>Asarco/Grupo Mexico</i>			95	temporary cutback
	Mission		35			temporary cutback
	Bagdad	<i>Phelps Dodge</i>	45			temporary cutback
	Sierrita		51			temporary cutback
Total Temporary Cutbacks			326	0	95	
Grand Total			624	180	372	

## 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 prorated for the years 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, the capacity will 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 straight forward 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 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 have generally secured financing and are under, or about to begin, construction. Plants that have not secured financing and are not under construction are categorised as planned.

**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.

**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 shutdown 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:** 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 are abbreviated as tpy.

### Figure 1, Trends in Mine Capacities 1985 to 2005

Thousand metric tonnes copper

Source	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Concentrates *	10,213	10,227	10,296	10,375	10,767	10,607	10,430	10,399	10,221	10,002	10,217	10,548	10,625	11,052	11,433	11,826	11,990	12,065	12,830	13,141	13,248
SX-EW	392	367	449	537	598	713	780	875	901	939	1,151	1,486	1,825	2,147	2,481	2,547	2,721	2,944	2,970	3,162	3,236
Mine (Total)	10,605	10,594	10,745	10,913	11,364	11,320	11,210	11,274	11,122	10,941	11,367	12,034	12,450	13,200	13,914	14,372	14,711	15,008	15,800	16,303	16,484

\* includes precipitates



## Figure 2, Trends in Smelter Capacities 1985 to 2005

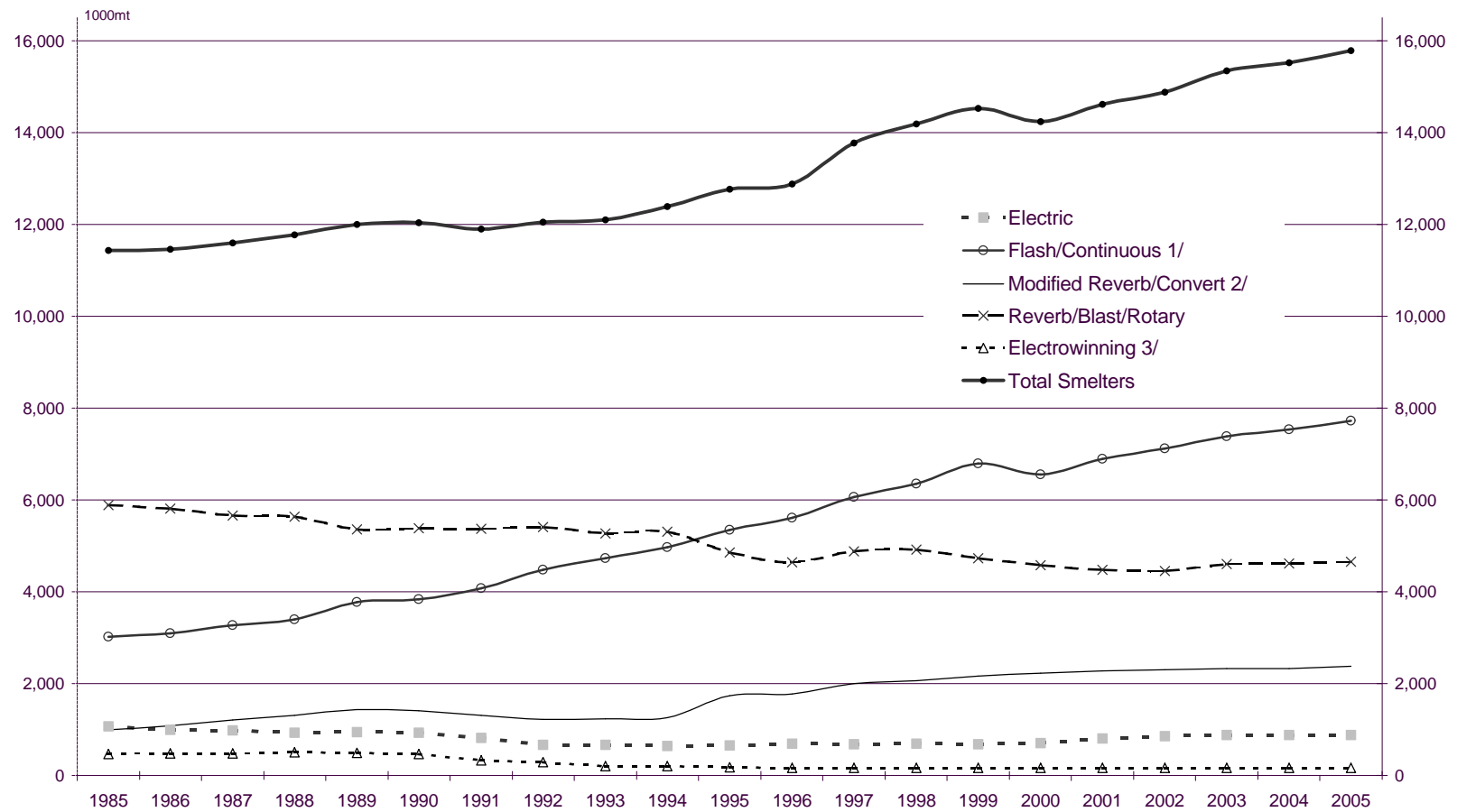
Thousand metric tonnes copper

Process	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Electric	1,070	990	985	937	940	934	822	662	670	642	654	689	683	693	681	706	806	856	876	876	876
Flash/Continuous 1/	3,016	3,098	3,264	3,394	3,774	3,836	4,080	4,471	4,724	4,969	5,348	5,610	6,057	6,346	6,790	6,556	6,887	7,112	7,377	7,537	7,727
Modified Reverb/Convert 2/	997	1,082	1,212	1,312	1,432	1,410	1,303	1,218	1,233	1,263	1,735	1,772	2,002	2,067	2,161	2,231	2,281	2,301	2,326	2,326	2,376
Reverb/Blast/Rotary	5,880	5,816	5,661	5,632	5,355	5,385	5,365	5,402	5,274	5,308	4,859	4,647	4,874	4,921	4,729	4,583	4,481	4,455	4,600	4,620	4,650
Electrowinning 3/	467	474	480	500	494	464	329	290	200	200	174	159	159	159	159	159	159	159	159	159	159
<b>Total Smelters</b>	<b>11,430</b>	<b>11,459</b>	<b>11,601</b>	<b>11,775</b>	<b>11,996</b>	<b>12,030</b>	<b>11,900</b>	<b>12,043</b>	<b>12,101</b>	<b>12,382</b>	<b>12,770</b>	<b>12,877</b>	<b>13,776</b>	<b>14,187</b>	<b>14,520</b>	<b>14,235</b>	<b>14,614</b>	<b>14,882</b>	<b>15,338</b>	<b>15,518</b>	<b>15,788</b>

1/ Outokumpu, Inco, Noranda, Mitsubishi, Isasmelt, etc.

2/ El Teniente, Oxygen Enriched, etc.

3/ Low grade copper to be re-refined



### Figure 3, Trends in Refinery Capacities 1985 to 2005

Thousand metric tonnes

Process	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Electrolytic	10,392	10,453	10,374	10,534	10,853	11,131	11,285	11,275	11,229	11,281	11,319	11,779	12,692	13,101	13,611	13,625	13,881	14,190	14,530	14,800	15,120
Electrowinning	429	407	489	596	657	773	841	935	944	985	1,212	1,618	1,977	2,254	2,557	2,617	2,810	3,035	3,061	3,293	3,367
Fire Refining	1,200	1,194	1,239	1,344	1,211	1,155	1,053	883	846	840	820	786	786	760	722	750	775	775	775	775	805
<b>Total Refineries</b>	<b>12,021</b>	<b>12,054</b>	<b>12,102</b>	<b>12,474</b>	<b>12,721</b>	<b>13,060</b>	<b>13,179</b>	<b>13,093</b>	<b>13,019</b>	<b>13,106</b>	<b>13,351</b>	<b>14,182</b>	<b>15,455</b>	<b>16,115</b>	<b>16,890</b>	<b>16,992</b>	<b>17,466</b>	<b>18,000</b>	<b>18,366</b>	<b>18,868</b>	<b>19,292</b>

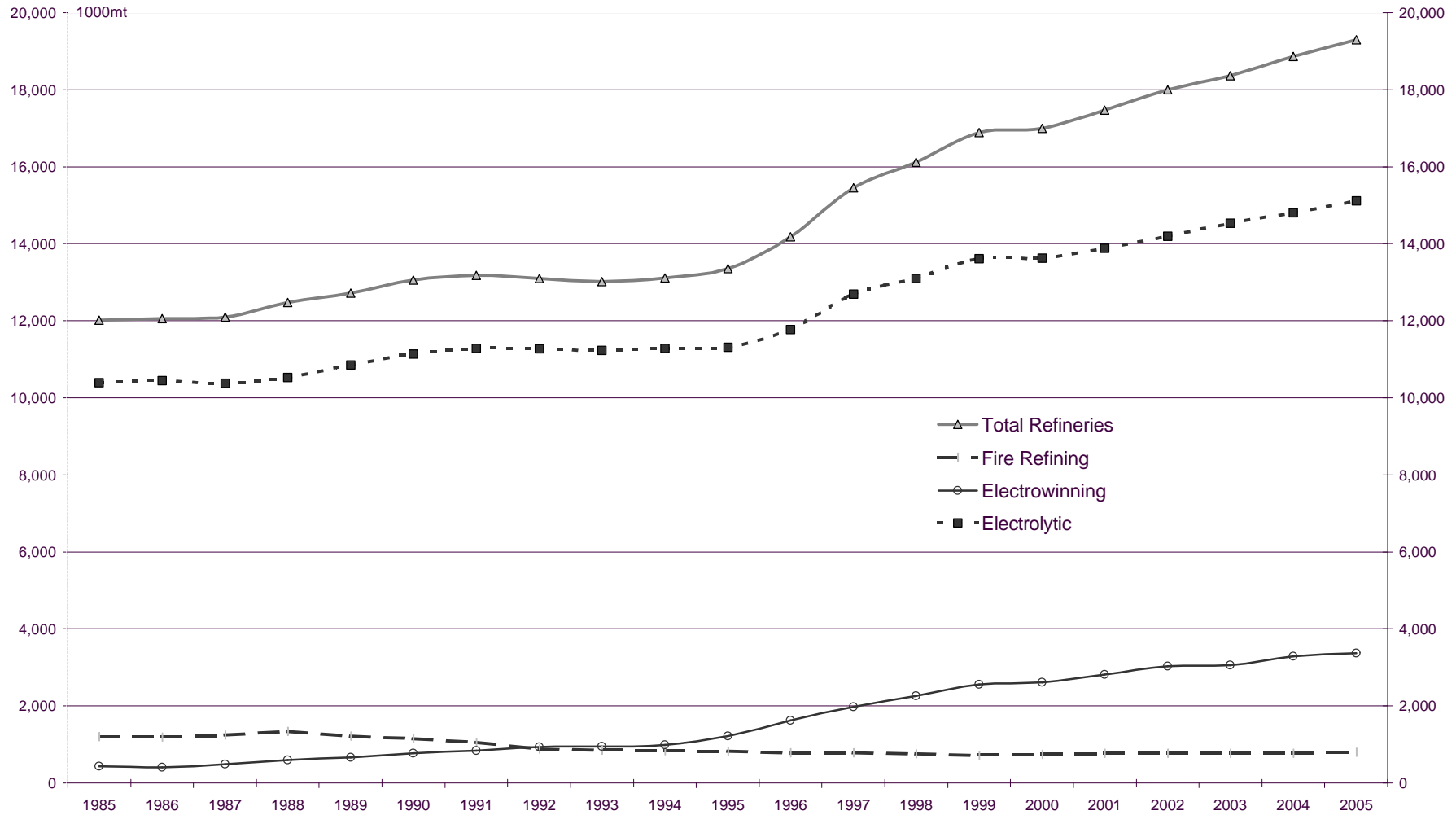




Table 1, Mine Capacities: Country Totals 1995 to 2005  
 Thousand Metric Tonnes Copper

Country	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Albania	15.84	11	11	11	11						
Argentina			40	160	215	170	192	195	197	190	190
Armenia	8	12	11	11	12.8	14.2	15	15	15	15	15
Australia	464.2	546	542.5	621	806	839	858	870	875	850	848
Botswana	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6
Brazil	50	45	40	30	30	50	50	50	50	40	30
Bulgaria	101.8	101.8	100	100	103	104	104	104	104	104	104
Canada	775.3	720.6	680	709.2	628.2	654.9	659.1	649	663	674.8	735.3
Chile	2680	3146	3474	3837	4495	4701	4856	4934	5352	5505	5518
China	441.3	484.8	596.8	584.8	573.7	613.7	630.2	610.6	654.6	708.1	726.1
Colombia	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Congo	95	60	50	40	35	45	61	87	97	101	111
Cuba	4	4	4								18
Cyprus		3	4	6	6	10	10	12	12	12	12
Ecuador	0.3	0.3									
Finland	9.6	9.3	9	9	9	12	11	26	26	27	27
France	0.5										
Georgia	8	8	8	9	9	9	9	9	9	9	9
Honduras	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
India	57	57	50	50	38	38	41	41	41	41	41
Indonesia	522	559	548	810	785	1010	1058	1000	1060	1030	1030
Iran	130	143	163	173	173	173	173	203	203	293	298
Italy							1	1	1	1	1
Japan	8.6										
Kazakhstan	344	305	334	352	417	507	515	515	545	550	550
Macedonia	9	9	9	9	9	9	12	12	12	12	12
Malaysia	30	30	20	15	15						
Mexico	393.7	376.1	389.5	389.5	389.5	389.5	431	431	431	431	431
Mongolia	140	140	143	144	144	144	145	145	162	162	162
Morocco	15.5	13.5	11	7	7	7	7	7	7	7	7
Myanmar	6	6	6	6	27	28	30	30	30	155	155
Namibia	55	45	28			4	25	25	25	25	25
Nicaragua	1	1	1	1	1	1	1	1	1	1	1
North Korea	15	15	15	15	15	15	15	15	15	15	15
Norway	6.8	7.4	6.7	3							
Pakistan	5	15	0	0	0	0	0	0	16	16	16
Panama									40	100	100
Papua New Guinea	215	215	215	215	210	210	210	160	160	160	160
Peru	423.86	498.9	512.9	501.1	539.6	551.4	720	872	898	898	939
Philippines	132	115	84	58	70	62	49.2	74.2	94.2	94.2	94.2
Poland	430	430	464	432	462	462	470	450	450	450	450
Portugal	141	141	107	115	100.5	77	85	86	86	86	86
Puerto Rico											0
Romania	27	27	27	27	27	27	27	27	27	27	27
Russia	611.5	617	566	567	577	605.5	620.5	665.5	695.5	700.5	704
Saudi Arabia	1	1		8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5
Slovakia Republic	4.5										
South Africa	235.1	227.1	227.1	227.1	223.1	202.1	182.1	157.1	147.1	147.1	147.1
Spain	21	46	55	28	7	23	9	10	10	10	10
Sweden	71.1	64.8	55.8	55.9	71.9	78.9	77.9	77.8	76.7	75	72
Turkey	63	70	76	76	87	77	72	77	77	77	77
United States	1983.6	2028.5	2077.5	2087.4	1895.4	1723	1559	1529	1545	1565	1565
Uzbekistan	50	80	80	80	80	100	100	120	120	150	150
Venezuela								5	30	30	30
Yugoslavia	90.7	100.7	100	105	105	110	110	110	110	110	110
Zambia	433	448	461	468	453	468	463	553	583	601	628
Zimbabwe	15.8	24.8	21.8	20.3	16.8	12.8	12.8	12.8	12.8	12.8	12.8
<b>World Total</b>	<b>11367</b>	<b>12034</b>	<b>12450</b>	<b>13200</b>	<b>13914</b>	<b>14372</b>	<b>14711</b>	<b>15008</b>	<b>15800</b>	<b>16303</b>	<b>16484</b>

Table 2, Smelter Capacities: Country Totals 1995 to 2005  
 Thousand Metric Tonnes Copper

Country	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Albania	19	17	17	17	17						
Armenia				10	10	8	12	12	12	12	12
Australia	284	274	274	274	400	510	610	620	630	650	660
Austria	50	85	85	85	85	85	85	85	85	85	85
Belgium	200	200	200	200	200	200	200	200	200	200	200
Bolivia	0.6	0.6									
Botswana	26	26	26	26	26	26	26	26	26	26	26
Brazil	170	170	170	185	200	200	220	220	220	220	380
Bulgaria	134	134	134	134	134	179	199	199	199	199	199
Canada	673.5	681.5	684.5	687.5	708	714	735	735	735	735	735
Chile	1475	1452	1485	1510	1525	1525	1565	1685	1845	1845	1815
China	606	517	969	939	1024	1084	1112	1245	1390	1470	1540
Colombia	6										
Congo	60	60	60	60	60	60	60	60	60	60	60
Denmark	5	5									
Finland	100	160	160	160	160	160	160	160	160	160	160
France	57	57	21	21							
Germany	628	662.2	662.2	662.2	685.5	685.5	715.5	715.5	716	716	716
Hungary	4	4	4	4	4	4	4	4	4	4	4
India	47.5	77.5	107.5	192.5	237.5	247.5	287.5	397.5	417.5	418	418
Indonesia					150	180	200	200	200	200	200
Iran	160	160	160	160	160	160	160	160	240	240	240
Italy	96	129	129	129	129	24					
Japan	1453.4	1486.4	1641.2	1665.2	1765.4	1765.4	1821.4	1821.4	1821.4	1821	1821
Kazakhstan	375	375	435	435	415	415	415	415	415	415	415
Korea Republic	190	200	150	290	370	410	410	430	460	460	460
Mexico	366	366	466	516	516	530	530	530	530	530	530
Namibia	60	60	60	60		30	50	50	50	50	50
North Korea	80	80	80	80	80	80	80	80	80	80	80
Oman	35	35	35	35	35	35	35	35	35	35	35
Pakistan	3	18									
Peru	356	356	356	370	370	380	430	430	430	430	490
Philippines	190	190	190	190	190	190	190	190	190	250	250
Poland	399	454	494	494	494	494	499	499	499	499	499
Romania	98	98	98	98	98	98	63	63	63	63	63
Russia	966	916	916	931	946	1036	1040	1051	1061	1081	1081
Slovakia	25	25	25	25			20	20	20	20	20
South Africa	200.6	200.6	200.6	200.6	200.6	182.6	182.6	182.6	182.6	182.6	182.6
Spain	165	300	320	320	322	352	352	352	352	352	352
Sweden	105	140	140	140	140	140	240	240	240	240	240
Turkey	40	40	40	40	40	42	42	42	42	42	42
United Kingdom	55	55	55	55	55						
United States	2001	1833	1890	1910	1735	1175	1035	900	900	900	900
Uzbekistan	100	100	100	140	140	140	140	140	140	140	140
Yugoslavia	170	170	170	170	170	170	170	170	170	170	170
Zambia	499	469	527	527	484	479	479	479	479	479	479
Zimbabwe	36.4	38.5	38.5	38.5	38.5	38.5	38.5	38	38	38	38
<b>World Total</b>	<b>12770</b>	<b>12877</b>	<b>13776</b>	<b>14187</b>	<b>14520</b>	<b>14235</b>	<b>14614</b>	<b>14882</b>	<b>15338</b>	<b>15518</b>	<b>15788</b>

Table 3, Refinery Capacities (incl. electrowon): Country Totals 1995 to 2005  
 Thousand Metric Tonnes

Country	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Albania	17	17	17	17	17						
Argentina	16										
Australia	285	367	370	393	498	618	709	716	723	723	733
Austria	60	72	72	72	75	80	80	80	80	80	80
Belgium	450	450	450	450	450	450	450	450	450	490	490
Brazil	165	202	202	202	202	202	220	220	220	220	380
Bulgaria	65	65	50	50	45	45	45	45	130	130	130
Canada	641	646	667	665	617	616	656	656	656	656	656
Chile	1642	1842	2197	2437	2701	2709	2834	2933	2943	3032	3102
China	758	1119	1427	1302	1397	1541	1556	1701	1856	2061	2211
Colombia	6										
Congo	40	40	40	40	50	80	100	100	100	100	100
Cuba											18
Cyprus		3	4	6	6	10	10	12	12	12	12
Denmark	5	5									
Egypt	4	4	4	4	4	4	4	4	4	4	4
Finland	70	125	125	125	125	125	125	140	140	140	140
France	45	45	45	45	2						
Germany	656	683.6	692.6	702.6	708	708	723	723	723	723	723
India	48.5	78.5	108.5	193.5	238	248	288	398	398	398	398
Indonesia					150	180	200	200	200	200	200
Iran	140	140	147	165	165	165	165	165	165	165	165
Italy	116	119	119	119	119	119	54	54	54	54	54
Japan	1263.6	1275.4	1289	1307	1417	1437	1473	1473	1473	1473	1473
Kazakhstan	387	380	380	380	395	415	425	425	435	435	435
Korea Republic	220	230	230	380	445	465	470	470	510	510	510
Mexico	300	300	390	600	600	570	612	612	612	612	612
Mongolia			3	4	4	4	5	5	22	22	22
Myanmar					27	28	30	30	30	155	155
North Korea	65	65	65	65	65	65	65	65	65	65	65
Norway	40	40	40	40	40	40	40	40	40	40	40
Oman	20	20	33	33	33	33	33	33	33	33	33
Peru	341	167	407	421	425	452	482	508	514	514	520
Philippines	175	175	175	175	175	175	175	175	175	175	175
Poland	435	435	450	450	460	470	475	475	475	475	475
Romania	85	85	85	85	85	85	85	85	85	85	85
Russia	830	855	815	825	835	850	857	868	868	868	868
Slovakia	27	27	27	27	27		20	20	20	20	20
South Africa	162.6	162.6	162.6	162.6	162.6	162.6	162.6	173	173	173	173
Spain	206	280	287	303	320	330	330	353	373	393	393
Sweden	105	140	140	140	140	140	240	240	240	240	240
Turkey	135	132	142	112	112	112	142	142	142	142	142
United Kingdom	50	50	57	60	60						
United States	2641.1	2595	2725	2757.4	2718.4	2434	2271	2311	2327	2347	2347
Uzbekistan	100	100	115	115	115	115	115	115	115	115	115
Yugoslavia	100	140	170	170	170	170	170	170	170	170	170
Zambia	410	475	500	485	460	510	540	585	585	588	598
Zimbabwe	23.1	29.8	29.8	29.8	29.8	29.8	29.8	30	30	30	30
<b>World Total</b>	<b>13351</b>	<b>14182</b>	<b>15455</b>	<b>16115</b>	<b>16890</b>	<b>16992</b>	<b>17466</b>	<b>18000</b>	<b>18366</b>	<b>18868</b>	<b>19292</b>

Table 4, Electrowinning Capacities: Country Totals 1995 to 2005  
 Thousand Metric Tonnes

Country	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Australia	49	57	55	68	88	88	99	96	93	93	93
Belgium										40	40
Bulgaria	5	5	5	5							
Canada	2	2	17	17	9	9	9	9	9	9	9
Chile	427	672	917	1142	1396	1399	1514	1613	1603	1642	1682
China		35	35	35	35	35	35	45	45	50	50
Cuba											18
Cyprus		3	4	6	6	10	10	12	12	12	12
Finland								15	15	15	15
Iran			7	15	15	15	15	15	15	15	15
Mexico	60	60	60	60	60	60	102	102	102	102	102
Mongolia			3	4	4	4	5	5	22	22	22
Myanmar					27	28	30	30	30	155	155
Norway	40	40	40	40	40	40	40	40	40	40	40
Peru	35	101	101	111	115	132	162	188	194	194	200
South Africa	15.6	15.6	15.6	15.6	15.6	15.6	15.6	26	26	26	26
United States	500.6	537.5	622.5	635.4	651.4	687	664	704	720	740	740
Zambia	70	75	80	85	80	80	95	120	120	123	133
Zimbabwe	8.1	14.8	14.8	14.8	14.8	14.8	14.8	15	15	15	15
<b>World Total</b>	<b>1212</b>	<b>1618</b>	<b>1977</b>	<b>2254</b>	<b>2557</b>	<b>2617</b>	<b>2810</b>	<b>3035</b>	<b>3061</b>	<b>3293</b>	<b>3367</b>

Table 5. WORLD COPPER MINES CAPACITIES 2000 to 2005

Mine	Operator/Owner(s)	Other Metals	Start Up	Current Status	Short Remarks	Source	2000	2001	2002	2003	2004	2005
<b>Albania</b>												
Munella	Nebex Resources	Zn		Exploration	Sold to Nebex Resources for US\$4million.							
					Exploration + Feasibility		0	0	0	0	0	0
					Total Albania		0	0	0	0	0	0
<b>Argentina</b>												
Bajo el Alumbreira	MIM Holdings (50%), North Ltd. (25%), Rio Algom	Au, Ag, Mo	1997	Operating		Concentrates	170	192	195	197	190	190
Martha	Minera Polimet	Au, Ag	2001	Operating		Concentrates		0	0			
					Operating + Developing		170	192	195	197	190	190
Agua Rica	BHP Minerals (70%), Northern Orion (30%)	Au		Feasibility	Final production about 220,000 tpy Cu.							
El Pachon	Cambior Inc (50%), Cia Minera San Jose S.A. (50%)	Mo, Ag, Au	2004	Feasibility	Final capacity 220,000 tpy. Project on hold.							
San Jorge	Northern Orion	Au, Ag		Exploration								
					Exploration + Feasibility		0	0	0	0	0	0
					Operating + Developing		170	192	195	197	190	190
					Total Argentina		170	192	195	197	190	190

<i>Mine</i>	<i>Operator/Owner(s)</i>	<i>Other Metals</i>	<i>Start Up</i>	<i>Current Status</i>	<i>Short Remarks</i>	<i>Source</i>	<i>2000</i>	<i>2001</i>	<i>2002</i>	<i>2003</i>	<i>2004</i>	<i>2005</i>
<b>Armenia</b>												
Agarak/Kapan	State	Mo	1963	Operating	Revived 1995.	Concentrates	2	2	2	2	2	2
Kajaran (Kadjaran)	Kadzharan Mining	Mo, Se, Te, Pyrite	1945	Operating		Concentrates	12	13	13	13	13	13
----- Operating + Developing							14	15	15	15	15	15
----- Total Armenia							14	15	15	15	15	15

Mine	Operator/Owner(s)	Other Metals	Start Up	Current Status	Short Remarks	Source	2000	2001	2002	2003	2004	2005
<b>Australia</b>												
Cadia Hill/ Ridgeway	Newcrest Mining	Au	1998	Operating	Ridgeway project (15,000 tpy Cu) under development.	Concentrates	25	25	35	44	44	44
Cobar (CSA Mine)	Glencore Int., Mt. Lyell Mining Co.	Zn, Pb, Ag, Au	1907	Operating	Mine was closed 1998 but restarted 1999.	Concentrates	30	30	30	30	30	30
Eloise	Almag Resources	Au, Ag	1996	Operating	Mine life 10 yrs.	Concentrates	20	20	20	10	10	10
Ernest Henry	MIM Holdings Ltd.	Au	1998	Operating		Concentrates	95	95	95	95	95	95
Girilambone	Straits Engineering (60%), Nord Pacific Ltd. (40%)		1993	Operating		SX-EW	18	6	3			
Goonumbra (North Parkes)	Rio Tinto (80%), Sumitomo (20%)	Au, Ag	1995	Operating	New development will extend mine life until 2010.	Concentrates	60	60	60	60	60	60
Hellyer	Western Metals	Pb, Zn, Ag	1987	Closed (2000)		Concentrates	2					
Kambalda/St.Ives	Western Mining Corp.	Ni	1967	Operating		Concentrates	2	2	2	2	2	2
Mount Cuthbert	Matrix Metals		1997	Operating		SX-EW	6	6	6	6	6	6
Mount Isa	Mount Isa Mines Ltd.	Ag, Pb, Zn	1931	Operating	Enterprise mine is replacing part of Mt. Isa orebody.	Concentrates	180	180	180	180	160	160
Mount Lyell	Sterlite Industries	Au, Ag, Pyrite	1893	Operating	Taken over by Sterlite Industries for A\$6.3million.	Concentrates	25	25	25	25	25	25
Mt. Gordon (Gunpowder)	Western Metals		1990	Operating		SX-EW	35	50	50	50	50	50
Nifty SX-EW	Straits Resources		1993	Operating		SX-EW	17	25	25	25	25	25
Olympic Dam	Western Mining Corp.	U (U3O8), Au, Ag	1988	Operating	Expansion to 245,000 tpy till 2004 and 350,000 tpy by 2008.	Concentrates	200	220	230	240	240	240
						SX-EW	8	8	8	8	8	8
Osborne Copper/Gold	Placer Pacific Ltd.	Au	1995	Operating	Concentrator started June 1995.	Concentrates	45	50	50	50	50	50
Port Pirie	Pasminco		1984	Operating	By-product.	SX-EW	4	4	4	4	4	4
Reward/Highway	Sterlite	Au	1998	Operating		Concentrates	35	20	10	5		
Scuddles (Golden Grove)	Normandy Poseidon	Zn, Pb, Ag, Au	1990	Operating	Gossan Hill to extend mine life.	Concentrates	10	10	10	10	10	10
Starra/Mt. Elliot (Selwyn)	Selwyn Mines Australia	Au, Ag	1988	Operating		Concentrates	15	15	20	24	24	22

Mine	Operator/Owner(s)	Other Metals	Start Up	Current Status	Short Remarks	Source	2000	2001	2002	2003	2004	2005	
Telfer Gold Mine	Newcrest Mining	Au	1987	Operating		Concentrates	3	3	3	3	3	3	
The Peak	Peak Gold (100% Rio Tinto)	Au, Zn, Pb, Ag	1992	Operating	Was temporarily closed in 2000.	Concentrates	4	4	4	4	4	4	
-----													
Operating + Developing								839	858	870	875	850	848
Roseby	Universal Resources, Bolnisi Gold			Exploration									
Tritton	Nord Pacific	Au	2002	Feasibility	Projected capacity is 18,000 tpy for a 7 year mine life.								
Whim Creek/Radio Hill	Straits Resources		2000	Feasibility	Lynas Gold has withdrawn its offer to buy the project.								
-----													
Exploration + Feasibility								0	0	0	0	0	0
Operating + Developing								839	858	870	875	850	848
-----													
Total Australia								839	858	870	875	850	848
<hr/>													
<b>Botswana</b>													
Selebi North	Botswana Copper Ltd.	Ni	1991	Operating	Located near Selebi-Phikwe.	Concentrates	5	5	5	5	5	5	
Selebi-Phikwe	Botswana Consolidated Ltd.	Ni, Co	1973	Operating	Drop in ore grades, 1990.	Concentrates	15	15	15	15	15	15	
Selkirk Deposit	Tati Nickel Mining Co.	Ni, Co	1989	Operating		Concentrates	2	2	2	2	2	2	
-----													
Operating + Developing								22	22	22	22	22	22
-----													
Total Botswana								22	22	22	22	22	22



Mine	Operator/Owner(s)	Other Metals	Start Up	Current Status	Short Remarks	Source	2000	2001	2002	2003	2004	2005
<b>Brazil</b>												
Jaguarari	Mineração Caraiba SA		1979	Operating	Open pit closed. Caraiba Deep started 1999.	Concentrates	50	50	50	50	40	30
					Operating + Developing		50	50	50	50	40	30
Alemao	CVRD (67%), BNDES	Au		Exploration	Feasibility finalised by year end 2001. Potential of 80,000 tpy Cu.							
Sossego	Phelps Dodge Corp. (50%), CVRD (50%)	Au		Feasibility	Could start 2004 with 125,000 tpy of Cu in concs at cash cost of \$0.4/lb.							
					Exploration + Feasibility		0	0	0	0	0	0
					Total	Brazil	50	50	50	50	40	30
<b>Bulgaria</b>												
Asarel Medet	Asarel Invest Co. (75% VA Copper Invest)	Au, Ag, Pyrite	1977	Operating	Largest mine in Balkans when fully developed.	Concentrates	53	53	53	53	53	53
Bradtze/ Strandja (Malko Turnovo Conc.)	Polimet	Mo, W, Ag, Au, Pyrite	1950	Operating	Average ore grade is 0.75% Cu at Bradtze.	Concentrates	2	2	2	2	2	2
Chelopech	Navan Resources (75%)	Au, Ag, Se, Te, As, Co, Pyrite	1950	Operating	Arsenic in ores is a problem.	Concentrates	9	9	9	9	9	9
ElatSITE	ElatSITE Copper Co.	Mo, Ag, Au	1981	Operating	Expansion completed in 1995.	Concentrates	40	40	40	40	40	40
Zidrovo (Burgas)	Burgaskii Mines Ltd.		1980	Operating		Concentrates	1	1	1	1	1	1
					Operating + Developing		104	104	104	104	104	104
					Total	Bulgaria	104	104	104	104	104	104

<i>Mine</i>	<i>Operator/Owner(s)</i>	<i>Other Metals</i>	<i>Start Up</i>	<i>Current Status</i>	<i>Short Remarks</i>	<i>Source</i>	<i>2000</i>	<i>2001</i>	<i>2002</i>	<i>2003</i>	<i>2004</i>	<i>2005</i>
<b>Canada</b>												
Bell Allard	Noranda Inc. (Matagami Div.)	Zn, Ag, Au	1999	Operating	Mine extends life of Mattagami Division.	Concentrates	6	11	12	13	4	4
Bouchard-Hebert (Mobrun)	Breakwater Resources	Zn, Ag, Au	1987	Operating		Concentrates	6	6	6	5	5	5
Bousquet No.2	Barrick Gold Corp.	Au	1990	Operating	Principally a Au operation.	Concentrates	4	3	3	2	2	2
Brunswick No.12	Noranda Inc.	Ag, Zn, Pb	1964	Operating	Principally a Pb/Zn operation.	Concentrates	8	8	8	8	8	8
Copper Rand 5000	MSV Resources Inc.	Au	1959	Operating		Concentrates		2	6	6	6	6
Highland Valley	Highland Valley Copper	Au, Ag, Mo	1962	Operating	Reopened in Sept./Oct. 1999 after being closed in May.	Concentrates	185	190	190	175	175	175
Huckleberry	Imperial Metals Corp., Japanese Consortium	Mo, Au, Ag	1997	Operating		Concentrates	35	37	35	35	35	30
Joe Mann	Campbell Resources Inc.	Au	1972	Operating	Principally a Au operation.	Concentrates	1	1	1	1	1	1
Kemess South	Northgate Exploration Ltd.	Au	1998	Operating	Northgate acquired mine for US\$180 million from Royal Oak.	Concentrates	30	30	30	27	27	27
Kidd Creek	Falconbridge Ltd.	Ag, Zn	1966	Operating	Feasibility to be completed on Kidd Deep mine.	Concentrates	53	55	47	42	42	42
La Ronde	Agnico Eagles Mines	Au, Ag, Zn	1988	Operating	Principally a Au operation.	Concentrates	3	3	7	7	9	9
Lac des Iles	North America Palladium	Pd, Pt, Au, Ni	1993	Operating	Principally a Pt group operation.	Concentrates	1	1	1	1	1	1
Langlois (Grevet)	Breakwater Resources	Zn, Ag, Au	1996	Closed (2000)		Concentrates	1					
Les Mines Selbaie (A1)	Billiton Metals Canada	Zn, Ag, Au	1986	Operating	Development of new ore bodies could defer production decline.	Concentrates	13	11	9	7	7	7
Louvicourt	Aur Resources, Novicourt, Teck Corp.	Zn, Au	1994	Operating	Exploration work ongoing to identify reserves.	Concentrates	53	52	52	40	40	40
Mt. Polley	Imperial Metals Corp. (52.5%), Sumitomo Corp. (47.5%)	Au	1997	Operating	On care and maintenance.	Concentrates	15	15	15	15	15	15
Myra Falls	Boliden Westmin Ltd.	Au, Ag, Zn, Pb	1967	Operating	Temporary cutback of 4,000 tpy Cu in 2001/2002.	Concentrates	14	14	14	14	14	14
Raglan	Falconbridge Ltd.	Ni	1998	Operating		Concentrates	6	7	8	10	11	11
Sudbury Area Mines	Falconbridge Ltd.	Ni, Co, Pg, Ag, Au	1928	Operating		Concentrates	43	46	43	45	43	43

<i>Mine</i>	<i>Operator/Owner(s)</i>	<i>Other Metals</i>	<i>Start Up</i>	<i>Current Status</i>	<i>Short Remarks</i>	<i>Source</i>	<i>2000</i>	<i>2001</i>	<i>2002</i>	<i>2003</i>	<i>2004</i>	<i>2005</i>
Thompson (Manitoba) / Sudbury (Ontario)	Inco Ltd.	Co, Ni, Ag, Au, PGM	1900	Operating	Coleman, Frood and Crean Hill to close in 2001.	Concentrates	129	114	110	105	104	104
Trout Lake/Flin Flon	Hudson Bay Mining & Smelting Co. Ltd.	Zn, Au, Ag	1982	Operating	Incl. Ruttan, Canuto, Callinan, '777'	Concentrates	46	49	47	49	56	56
Winston Lake & Troilus	Inmet Mining Corp.	Ag, Au, Zn	1988	Operating	Pick Lake replaced Winston by 4th quarter 1998.	Concentrates	4	6	6	6	6	6
Operating + Developing							655	659	649	612	609	604
Finlayson	Expatriate Resources	Zn, Pb, Au, Ag, As	2005	Exploration	Permitting continuing. Comprises Wolverine and Kudz Ze Kayah.							
Izok Lake	Inmet Mining Corp.	Zn, Pb, Ag	2005	Exploration	Development deferred.	Concentrates						23
Minto	Grupo Mexico, Minto Explorations	Au, Ag	2002	Feasibility	Possible mine start up in 2003.	Concentrates				7	16	16
Mt. Milligan	Placer Dome Inc.	Au, Ag, Mo	2005	Feasibility	Development deferred for reevaluation.	Concentrates						38
Prosperity (Fish Lake)	Taseko Mines Ltd.	Au, Erg	2001	Feasibility		Concentrates				35	40	45
Tulsequah Chief	Redfern Resources (Teck Corp.)	Zn, Pb, Au, Ag	2003	Feasibility	Permitting not yet completed.	Concentrates				9	10	10
Voiseys Bay	Voiseys Bay Nickel Company	Ni, Co	2003	Feasibility	Project delayed indefinitely.							
Exploration + Feasibility							0	0	0	51	66	131
Operating + Developing							655	659	649	612	609	604
Total Canada							655	659	649	663	675	735

Mine	Operator/Owner(s)	Other Metals	Start Up	Current Status	Short Remarks	Source	2000	2001	2002	2003	2004	2005
Chile												
Andacollo	Aur Resources (70%), CMP (20%), Enami (10%)		1996	Operating		SX-EW	22	22	22	22	22	22
Andina	Codelco Chile	Mo, Ag, Au	1970	Operating	2002 production cutback of 23,000 tpy Cu.	Concentrates	260	260	260	260	260	260
Candelaria	Phelps Dodge Corp. (80%), Sumitomo Metal Mining (15%), Sumitomo Corp. (5%)	Au, Ag	1994	Operating	Ore grades are falling since start of 2000.	Concentrates	230	230	230	230	230	230
Cerro Colorado	Rio Algom Ltd.		1994	Operating		SX-EW	125	125	125	125	125	125
Cerro Negro	Workers cooperative			Operating		Concentrates	5	5	5	5	5	5
Chuquicamata	Codelco	Mo, Au, Ag	1915	Operating	2002 production cutback of 45,000 tpy Cu.	Concentrates	490	503	515	559	543	546
						SX-EW	141	141	130	96	85	85
Collahuasi	Minorco (44%), Falconbridge (44%), Mitsui + Nippon (12%)	Mo, Ag, Au	1998	Operating		Concentrates	390	390	370	390	390	390
						SX-EW	58	59	58	58	58	58
El Abra	Codelco (49%), Phelps Dodge (51%)		1996	Operating		SX-EW	200	221	240	250	250	250
El Bronce	JV, Nittetsu Mines (60%), Inversiones Errazuriz (40%)	Au		Developing	Expected cash cost of US\$0.6/lb	Concentrates			25	30	30	30
El Indio	Cia. Minera El Indio (Barrick)	Au, Ag	1981	Operating	To be closed mid 2002.	Concentrates	15	15	7			
El Soldado	Cia. Minera Disputada de Las Condes S.A.		1942	Operating		Concentrates	70	70	70	70	70	70
						SX-EW	8	8	8	8	8	8
El Teniente	Codelco Chile	Mo	1906	Operating	2002 production cutback of 25,000 tpy Cu.	Concentrates	350	350	350	400	400	400
						SX-EW	4	4	4	8	8	8
El Tesoro/Leonor	Antofagasta Holdings (61%), AMP (39%)		2001	Operating		SX-EW		45	85	75	75	75
Escondida	Broken Hill (57.5%), Rio Tinto Corp. (30%), Japan Escondida (10%)	Au, Ag	1991	Operating	Ammonia leach of concentrates stopped 1998.	Concentrates	780	750	740	1,000	1,160	1,160

Mine	Operator/Owner(s)	Other Metals	Start Up	Current Status	Short Remarks	Source	2000	2001	2002	2003	2004	2005
Escondida	Broken Hill (57.5%), Rio Tinto Corp. (30%), Japan Escondida (10%)	Au, Ag	1991	Operating	2002 production cutback of 40,000 tpy Cu.	SX-EW	140	145	150	150	150	150
Ivan/Zar	Milpo		1995	Operating		SX-EW	13	13	13	13	13	13
La Cascada (Sagasca)	Grupo Cruzat		1972	Closed (2000)		Precipitates	15					
Las Luces	Cia. Minera Las Luces Ltda	Ag, Au	1996	Operating		Concentrates	10	10	10	10	10	10
Lo Aguirre	Sociedad Minera Pudahuel Ltda y Cia.		1980	Closed (2000)		SX-EW	3					
Lomas Bayas	Falconbridge, Noranda		1998	Operating		SX-EW	55	60	60	60	60	60
Los Bronces	Cia. Minera Disputada de Las Condes S.A.	Mo	1925	Operating	Expansion by 60,000 tpy copper planned.	Concentrates	170	180	200	200	200	200
						SX-EW	12	12	27	27	27	27
Los Pelambres	Antofagasta Holdings (60%), Nippon Mining (25%), Mitsubishi Materials (15%)	Ag, Au, Mo	1992	Operating	Concentrates grade 44%.	Concentrates	312	374	330	360	330	300
Mansa Mina	Alliance Copper Ltd. (Codelco, Billiton)	As, Mo, Ag, Au		Developing	Will prototype bioleach technology.	Other Leach				20	20	20
Manto Verde	Empresa Minera de Mantos Blancos S.A.		1995	Operating		SX-EW	60	60	60	60	60	60
Mantos Blancos	Anglo American Corp.	Ag	1961	Operating		Concentrates	45	45	45	45	45	45
						SX-EW	60	60	60	60	60	60
Michilla	Antofagasta Holdings		1970	Operating	Lince and Michilla operations.	SX-EW	51	51	51	51	51	51
Quebrada Blanca	Aur Resources (76.5%), Soc. Minera Pudahuel (13.5%), ENAMI (10%)		1994	Operating		SX-EW	75	75	75	75	75	75
Radomiro Tomic	Codelco Chile		1998	Operating		SX-EW	190	250	280	280	280	280
Salvador	Codelco Chile	Mo, Au, Ag	1927	Operating	2002 production cutback of 11,300 tpy Cu.	Concentrates	70	70	70	70	70	70
						SX-EW	25	25	25	25	25	25
San Jose (Socavon)	Soc. Punta del Cobre (Pucobre)		1971	Operating		Concentrates	16	16	20	46	46	46

Mine	Operator/Owner(s)	Other Metals	Start Up	Current Status	Short Remarks	Source	2000	2001	2002	2003	2004	2005	
San Jose (Socavon)	Soc. Punta del Cobre (Pucobre)		1971	Operating		SX-EW	7	8	8	8	8	8	
Various small mines	ENAMI and Small Mine Owners			Operating	Various small mines delivering to ENAMI.	Concentrates	70	70	70	70	70	70	
Zaldivar	Placer Dome Inc .		1995	Operating		Concentrates	4	4	4	4	4	4	
						SX-EW	150	130	132	132	132	132	
-----													
Operating + Developing								4,701	4,856	4,934	5,352	5,455	5,428
-----													
Altamira	SMP SA. ( Minera e Inmobiliaria Pudahuel 90%), ENAMI	Ag	2003	Feasibility	The project has a potential of 15,000 to 30,000 tpy of contained copper.								
Barreal Seco	RTZ Mining and Exploration		2004	Exploration									
Cerro Casale	Placer Dome (51%), Bema Gold (49%)	Au		Feasibility	Principally a gold mine								
Fortuna de Cobre	Falconbridge, Noranda		2006	Exploration	Possible 100,000 tpy copper production.								
Gaby Sur	Codelco		2004	Feasibility	Planned production of 100,000 tpy cathode.	SX-EW					50	90	
Mantos de la Luna	Izquierdo Menendez Group		2004	Feasibility									
Primavera	Pan American Resources	Au		Exploration	Possible 4,000 tpy of copper in concentrate.								
Spence	Billiton		2004	Exploration	Possible 185,000 tpy of copper in concentrates and 40,000t cathode.								
-----													
Exploration + Feasibility								0	0	0	0	50	90
Operating + Developing								4,701	4,856	4,934	5,352	5,455	5,428
-----													
Total Chile								4,701	4,856	4,934	5,352	5,505	5,518

<i>Mine</i>	<i>Operator/Owner(s)</i>	<i>Other Metals</i>	<i>Start Up</i>	<i>Current Status</i>	<i>Short Remarks</i>	<i>Source</i>	<i>2000</i>	<i>2001</i>	<i>2002</i>	<i>2003</i>	<i>2004</i>	<i>2005</i>
<b>China</b>												
Aleitai (Uyгур)	Chinese Government	Ni, Ag, Au, Zn	1993	Operating	Principally a Zn mine.	Concentrates	1	1	1	1	1	1
Anqing	Tongling Nonferrous Metals Co.	Au, Ag, Mo, Co	1990	Operating		Concentrates	10	10	10	10	10	10
Anqing Yueshan	Anqing Yueshan Copper Mine	Au, Ag, Mo		Operating		Concentrates	1	1	1	1	1	1
Baineimiao Copper Mine	Local Government		1976	Operating		Concentrates	2	2	2	2	2	2
Baiyin Mine	Baiyin Non Ferrous Metals Co.	Au	1960	Operating		Concentrates	15	15	15	15	15	15
Baiyunshan	Local Government		1996	Operating		Concentrates	1	1	1	1	1	1
Chengmenshan	Jiangxi Copper Corp.	Ag, Au	1991	Operating	Consider to use SX-EW for expansion.	Concentrates	7	20	20	20	20	20
Dachang	Chinese Government		1992	Operating		Concentrates	1	1	1	1	1	1
Dahongshan	Yunnan Copper			Operating	Phase II will double capacity.	Concentrates	9	9	9	18	18	18
Dajing Silver/Copper Mine	CCLZ	Sn, Ag	1978	Operating		Concentrates	2	2	2	2	2	2
Dayao Copper Mine	Dayao Copper Co.		1976	Operating		Concentrates	8	8	8	8	8	8
Daye Iron Copper Mine	Daye Iron Ore Co.	Au, Ag, Fe	1890	Operating	Primarily an iron ore mine.	Concentrates	20	20	20	20	20	20
Dexing	Jiangxi Copper Industry Co.	Mo, Au, Ag, Rh	1958	Operating	Fujiawu deposit will extend mine life.	Concentrates	130	130	130	130	130	130
Dongchuan	Yunnan Copper		1960	Closed (2001)	Capacity from 1993 production rate.	Concentrates	20	20				
Dongguashan	Tongling Non Ferrous Metals Co.		2002	Operating		Concentrates		5	7	8	30	34
Duobaoshan Copper	Local Government		1958	Operating		Concentrates	1	2	2	2	2	2
Fenghuangshan	Tongling Copper Co.			Operating	Will close 2002.	Concentrates	8	8				
Gejiu Qianjin	Local Government	Sn	1958	Operating		Concentrates	3	3	3	3	3	3
Hami Nickel Copper	Jinquan Nonferrous Metals	Ni	2000	Operating		Concentrates		5	5	5	5	5
Hongtoushan Cu/Zn Mine	Shenyang Copper Co.	Zn	1958	Operating		Concentrates	8	8	8	8	8	8
Huili			1958	Operating		Concentrates	1	1	1	1	1	1

Mine	Operator/Owner(s)	Other Metals	Start Up	Current Status	Short Remarks	Source	2000	2001	2002	2003	2004	2005
Huogeqi	Local Government		1990	Operating		Concentrates	5	5	5	5	5	5
Jinkolin	Tongling Copper Co.	Au		Operating	Will close 2002.	Concentrates	1	1				
Jinquan Copper/Nickel	Jinquan Nonferrous Metals	Ni	1960	Operating	Located on edge of Gobi desert.	Concentrates	20	20	20	20	20	20
Lala Copper	Sichuan Copper Nickel Co., Yunnan Copper Group		1959	Operating		Concentrates	4	4	4	4	8	10
Langyashan Copper	Local Government		1958	Operating		Concentrates	2	2	2	2	2	2
Liwu Copper	Local Government		1996	Operating		Concentrates	5	5	5	5	5	5
Longcai	Longcai Mining		1989	Operating		Concentrates	1	1	1	1	1	1
Luanyuan Copper			1951	Operating		Concentrates	4	4	4	4	4	4
Mangushan	Local Government		1995	Operating		Concentrates	2	2	2	2	2	2
Mayang	Local Government		1996	Operating		Concentrates	2	2	2	2	2	2
Mouding Copper/ Yunnan	Yunnan Copper	Zn, Pb	1973	Closed (2001)	Associated with a wire mill.	Concentrates	5	2				
Nanking Guli			1969	Operating		Concentrates	1	1	1	1	1	1
Nanking Jiuhuashan			1981	Operating		Concentrates	1	1	1	1	1	1
Pingshui	Pingshui Copper Mining Co.	Zn, Ag, Au, S, Barite	1967	Operating	19 ore veins in mine area.	Concentrates	1	1	1	1	1	1
Pucheng	Local Government		1972	Operating		Concentrates	1	1	1	1	1	1
Qilianshan	Local Government		1958	Operating		Concentrates	1	1	1	1	1	1
Saishitang	Western Mining Industry Co. (69.7%), Xitieshan Mining Department	Au, Ag	2003	Developing	Development of Tengyugou deposit would double capacity.	Concentrates				7	7	13
Shikoushan Mines	Shikoushan Mine Bureau	Zn, Pb	1896	Operating	Mostly a Pb/Zn mine.	Concentrates	7	7	7	7	7	7
Shilu Copper Mines	Shilu Copper Industry Co.		1973	Operating		Concentrates	7	7	7	7	7	7
Shiquiliu/Deheishan	Jilin Nickel Copper Industry Co.	Ni, Pb, Zn, Sb	1964	Operating		Concentrates	2	2	2	3	3	3
Shizishan	Tongling Copper Co.		1966	Operating	Laoyalying, Shizishan ore bodies.	Concentrates	9	9	9	9	9	9



Mine	Operator/Owner(s)	Other Metals	Start Up	Current Status	Short Remarks	Source	2000	2001	2002	2003	2004	2005
Sijjawan		Au	1978	Operating		Concentrates	1	1	1	1	1	1
Small Mines Anhui				Operating		Concentrates	3	3	3	3	3	3
Small Mines Gansu				Operating		Concentrates	2	2	2	2	2	2
Small Mines Guangxi				Operating		Concentrates	2	2	2	2	2	2
Small Mines Hebei				Operating		Concentrates	1	1	1	1	1	1
Small Mines/ Anhui Area	Chinese Government	Au	1950	Operating		Concentrates	3	3	3	5	5	5
Songjiang	Local Government	Zn	1972	Operating		Concentrates	3	3	3	3	3	3
SX-EW plants				Operating		SX-EW	35	35	45	45	50	50
Tangdan	Yunnan Copper Co.		2002	Developing	Phase II will bring capacity to 16,000 tpy Cu.	Concentrates			4	9	9	9
Tianbaoshan Mine	Chinese Government	Zn, Pb		Operating		Concentrates	1	1	1	1	1	1
Tongkuangyu/ Hujiaoyu/ Bizhigou	Zhongtiaoshan Nonferrous Metals		1960	Operating		Concentrates	35	35	35	35	35	35
Tonglushan	Tonglushan Copper Co.	Au, Fe, Ag	1971	Operating	Oxide & sulfide ores.	Concentrates	12	12	12	12	12	12
Tongshan (Lion Mtn)	Tongling Copper Co.	Au, Ag	1952	Operating	Will close 2002.	Concentrates	4	4				
Tonguanshan	Tongling Copper Co.	Ag, Au	1950	Closed (2001)	UG reserves exhausted.	Concentrates	1	1				
Tungshankuo	CCLZ			Operating		Concentrates	8	8	8	8	8	8
Various Mines	CCLZ	Pb, Zn, Ni, Sn, Sb		Operating		Concentrates	48	48	48	48	48	48
Xianlinbu Iron Mine	Xianlinbu Iron Mining Co.	Fe, W, S, Mo	1938	Operating		Concentrates	4	4	4	4	4	4
Xinhuashan	Tongling Non Ferrous Metals	Au, Ag, Mo	2000	Operating		Concentrates		1	1	1	1	1
Yangxin Lijawang	Local Government		1990	Operating		Concentrates	1	1	1	1	1	1
Yimen (Dahongshan)	Yimen Mine Bureau (Yunnan Copper Co.)		1960	Operating		Concentrates	60	60	60	60	60	65
Yongping	Chinese Government	Au, Ag	1984	Operating		Concentrates	15	15	15	15	15	15

Mine	Operator/Owner(s)	Other Metals	Start Up	Current Status	Short Remarks	Source	2000	2001	2002	2003	2004	2005	
Yuanqu (Zhongtiaoshan)	Chinese Government	Pb	1960	Operating		Concentrates	24	18	18	18	18	18	
Yueshan			1970	Operating		Concentrates	1	1	1	1	1	1	
Yunnan Tin Industry	Yunnan Tin Industry	Sn, Pb, Ag	1913	Operating		Concentrates	6	6	6	6	6	6	
Yushan and Dongxiang	Jiangxi Copper Corp.			Operating		Concentrates	8	8	8	8	8	8	
Zhangye	Local Government		1987	Operating		Concentrates	2	2	2	2	2	2	
Zhaojun	Liangshan Zhaojue Copper Works		1958	Operating		Concentrates	1	1	1	1	1	1	
Zheyaoshan	Baiyin Nonferrous Metals Co.	Pb, Zn, Ni	1991	Operating		Concentrates	1	1	1	1	1	1	
Zheyaoshan- Xitiaoshan	Baiyin Non Ferrous Metals Co.			Operating		Concentrates	4	4	4	4	4	4	
Zhouping	Local Government		1990	Operating		Concentrates	2	2	2	2	2	2	
-----													
Operating + Developing								614	630	611	635	665	683
Ashele	Beijing Zhongbao Holding Co., Xinjiang Non Ferrous Metal Industry Corp., China Mining and Geological Dep., Xinjiang Atai Gold Bureau	Zn, Pb, Ag, Au	2002	Feasibility	SX-EW technology might be applied.	Concentrates					23	23	
East Tianshan				Exploration									
Fujiawu	Jangxi Copper Comp.	Mo, Au, Ag		Feasibility	Possible production of 22,300 tpy Cu in concentrates by 2006.								
Yulong	CCLZ	Au, Ag	2001	Feasibility	Located in Tibet.	Concentrates				20	20	20	
-----													
Exploration + Feasibility								0	0	0	20	43	43
Operating + Developing								614	630	611	635	665	683
-----													
Total China								614	630	611	655	708	726

<i>Mine</i>	<i>Operator/Owner(s)</i>	<i>Other Metals</i>	<i>Start Up</i>	<i>Current Status</i>	<i>Short Remarks</i>	<i>Source</i>	<i>2000</i>	<i>2001</i>	<i>2002</i>	<i>2003</i>	<i>2004</i>	<i>2005</i>
<i>Colombia</i>												
El Roble	Minas El Roble	Au	1991	Operating		Concentrates	3	3	3	3	3	3
Frontino Gold		Au	1974	Operating		Concentrates	1	1	1	1	1	1
----- Operating + Developing							4	4	4	4	4	4
----- Total Colombia							4	4	4	4	4	4

Mine	Operator/Owner(s)	Other Metals	Start Up	Current Status	Short Remarks	Source	2000	2001	2002	2003	2004	2005	
<b>Congo</b>													
Dikulushi	Anvil Mining (90%)	Ag	2002	Developing	High grade concentrates of 100,000 tpy (40%Cu) will be shipped to Zambia.	Concentrates			2	12	16	16	
Kamoto + Dima (sulphides)	Iscor, Gecamines	Co		Operating	Kamoto + Dima concentrator.	Concentrates	25	35	50	50	50	50	
Kolwezi Mill	La Générale des Carrières et des Mines - Gecamines	Co	1942	Operating	Kolwezi concentrator.	Concentrates	20	25	25	25	25	25	
Lonshi	First Quantum		2001	Operating	Ore leached at Bwana Mkubwa, Zambia.	SX-EW		1	10	10	10	20	
-----													
Operating + Developing								45	61	87	97	101	111
Kakanda Project	International Panorama Resource Corp. (51%), Gecamines (49%)	Co		Exploration	Preliminary feasibility ready.								
Kolwezi Project	Anglo American, America Mineral Fields	Co		Exploration	Bankable feasibility delayed. Projected capacity is 42,000 tpy.								
Lubembe North	Sodimco, Calidonia Mining	Co		Exploration									
Tenke Fungurume	Gecamines (45%), Tenke Mining Corp. (55%)	Co, Ag		Feasibility	Possible production of 100,000 to 200,000 tpy of contained copper.								
-----													
Exploration + Feasibility								0	0	0	0	0	0
Operating + Developing								45	61	87	97	101	111
-----													
Total Congo								45	61	87	97	101	111
<b>Cuba</b>													
Mantua	Geominera, Northern Orion	Au	2005	Feasibility		SX-EW						18	
-----													
Exploration + Feasibility								0	0	0	0	0	18
-----													
Total Cuba								0	0	0	0	0	18

Mine	Operator/Owner(s)	Other Metals	Start Up	Current Status	Short Remarks	Source	2000	2001	2002	2003	2004	2005
<b>Cyprus</b>												
Tamasos (Skouriotissa)	Oxiana Resources NL, Hellenic Metallurgy Co. Ltd.	Au	1982	Operating	Design capacity of 8000 tpy. Doubling of capacity is intended.	SX-EW	10	10	12	12	12	12
-----												
Operating + Developing							10	10	12	12	12	12
-----												
Total Cyprus							10	10	12	12	12	12
<b>Finland</b>												
Kokkola	OMG Kokkola Chemicals Oy		2002	Developing		SX-EW			15	15	15	15
Pyhasalmi	Outokumpu Mining Oy	Zn	1962	Operating		Concentrates	12	11	11	11	12	12
-----												
Operating + Developing							12	11	26	26	27	27
-----												
Total Finland							12	11	26	26	27	27
<b>Georgia</b>												
Madneuli complex	Georgian Government	Ba, Au		Operating		Concentrates	9	9	9	9	9	9
-----												
Operating + Developing							9	9	9	9	9	9
-----												
Total Georgia							9	9	9	9	9	9
<b>Honduras</b>												
El Mochito	Rosario Resources	Pb, Zn, Au, Ag	1948	Operating	Principally Au/Ag with by-product Pb, Zn.	Concentrates	1	1	1	1	1	1
-----												
Operating + Developing							1	1	1	1	1	1
-----												
Total Honduras							1	1	1	1	1	1

Mine	Operator/Owner(s)	Other Metals	Start Up	Current Status	Short Remarks	Source	2000	2001	2002	2003	2004	2005
<b>India</b>												
Khetri/ Kolihan/ Chandmari	Hindustan Copper Ltd.		1970	Operating	Khetri Complex.	Concentrates	12	12	12	12	12	12
Malanjkhand	Hindustan Copper Ltd.		1982	Operating		Concentrates	20	23	23	23	23	23
Misc. group of mines	Chitradurga/Gujaret etc.		1970	Operating		Concentrates	1	1	1	1	1	1
Surda/Rakha	Hindustan Copper Ltd.	Ag, Au, Se, Ni, Te	1930	Operating	Mosaboni, Pathargora and Kendadih mines closed in 1999.	Concentrates	5	5	5	5	5	5
Operating + Developing							38	41	41	41	41	41
Total India							38	41	41	41	41	41
<b>Indonesia</b>												
Batu Hijau	PT Pukuafu Indah (20%), Newmont (45%), Sumitomo Corp. (27.5%), Sumitomo Metal Mining (5%), Mitsubishi Materials (2.5%)	Au, Ag	1999	Operating		Concentrates	240	315	300	280	250	250
Grasberg/Ertsberg	P.T. Freeport Indonesia Co. (PT-FI)	Au, Ag	1972/1990	Operating	Intends to start SX-EW technology with 1,000 tpy.	Concentrates	770	743	700	780	780	780
Operating + Developing							1,010	1,058	1,000	1,060	1,030	1,030
Total Indonesia							1,010	1,058	1,000	1,060	1,030	1,030

Mine	Operator/Owner(s)	Other Metals	Start Up	Current Status	Short Remarks	Source	2000	2001	2002	2003	2004	2005
<b>Iran</b>												
Birjand	National Iranian Copper Co.		1994	Operating		Concentrates	3	3	3	3	3	3
Sar Cheshmeh	National Iranian Copper Co.	Ag, Au, Mo, Re	1974	Operating		Concentrates	155	155	185	185	185	185
						SX-EW	15	15	15	15	15	15
----- Operating + Developing							173	173	203	203	203	203
Meydouk (Meduk)	National Iranian Copper Co.		2004	Feasibility	Contract for the construction of concentrator awarded to Svedala.	Concentrates					45	45
Sungung (Songon)	Ahar Consolidated Copper Mines		2004	Feasibility	Swedish plantmaker Svedala will deliver beneficiation plant.	Concentrates					45	50
----- Exploration + Feasibility							0	0	0	0	90	95
----- Total Iran							173	173	203	203	293	298
<b>Italy</b>												
Furtei	Gold Mines of Sardinia Ltd.	Au		Operating	Formerly a sole gold producer.	Concentrates		1	1	1	1	1
----- Operating + Developing							0	1	1	1	1	1
----- Total Italy							0	1	1	1	1	1

Mine	Operator/Owner(s)	Other Metals	Start Up	Current Status	Short Remarks	Source	2000	2001	2002	2003	2004	2005
<b>Kazakhstan</b>												
Dzhezkazgan Complex	Samsung	Pb, Zn, Au, Ag	1928	Operating		Concentrates	230	230	230	230	230	230
Irtysk Complex/Belousov	Kazakhmys (Samsung)	Pb,Zn,Au,Erg	1930	Operating		Concentrates	25	25	25	25	25	25
Itauz	Kazakhmys (Samsung)		1998	Operating		Concentrates	40	40	40	40	40	40
Kounrad/ Sayak Complex	Samsung	Au, Ag, Mo	1938	Operating		Concentrates	40	40	40	40	40	40
Leninogorsk Complex	Leninogorsk combinat			Operating		Concentrates	10	10	10	10	10	10
Shatyrkol	Samsung	Mo, Au, Ag	2000	Operating		Concentrates	2	10	10	10	10	10
Shemonaikhinsky/Kamyshin	Samsung	Mo		Operating		Concentrates	40	40	40	40	40	40
Zhezkent Complex	Samsung			Operating		Concentrates	110	110	110	110	110	110
Ziryanovsk Plant (4 mines)	Ziryanovsk Lead Combine	Pb, Zn, Pyrite	1953	Operating		Concentrates	10	10	10	10	10	10
----- Operating + Developing							507	515	515	515	515	515
Boshtchekul	East Point Holding	Mo, Ag,Au,Se,Co	2003	Feasibility	Up to 40,000 tpy of copper content.	Concentrates				30	35	35
Nurkazgan/Samarskoye	KazMinCo	Au		Exploration	Prefeasibility envisages 55,800 tpy of copper output.							
----- Exploration + Feasibility							0	0	0	30	35	35
----- Total Kazakhstan							507	515	515	545	550	550
<b>Laos</b>												
Sepon.	Oxiana Resources (80%)	Au		Exploration	Possible production of 40,000 tpy Cu content.							
----- Exploration + Feasibility							0	0	0	0	0	0
----- Total Laos							0	0	0	0	0	0



<i>Mine</i>	<i>Operator/Owner(s)</i>	<i>Other Metals</i>	<i>Start Up</i>	<i>Current Status</i>	<i>Short Remarks</i>	<i>Source</i>	<i>2000</i>	<i>2001</i>	<i>2002</i>	<i>2003</i>	<i>2004</i>	<i>2005</i>
<b>Macedonia</b>												
Bucim/Cukar/Vrsnik	Rudarsko Za Bahra Bucim	Au, Magnetite	1979	Operating		Concentrates	9	12	12	12	12	12
						Operating + Developing	9	12	12	12	12	12
					<b>Total</b>	<b>Macedonia</b>	<b>9</b>	<b>12</b>	<b>12</b>	<b>12</b>	<b>12</b>	<b>12</b>

<i>Mine</i>	<i>Operator/Owner(s)</i>	<i>Other Metals</i>	<i>Start Up</i>	<i>Current Status</i>	<i>Short Remarks</i>	<i>Source</i>	<i>2000</i>	<i>2001</i>	<i>2002</i>	<i>2003</i>	<i>2004</i>	<i>2005</i>	
<b>Mexico</b>													
Cananea	Grupo Mexico	Au, Ag, Mo	1896	Operating		Concentrates	120	120	120	120	120	120	
					Start up 1980.	SX-EW	35	77	77	77	77	77	
Charcas Operations	Industria Minera Mexico S.A.	Ag, Zn, Pb, Au	1910	Operating	Ore grade 0.24% Cu; 1.1 mill. tpy ore.	Concentrates	6	6	6	6	6	6	
La Caridad	Mexicana de Cobre S. A.	Au, Ag, Mo	1979	Operating		Concentrates	170	170	170	170	170	170	
						SX-EW	25	25	25	25	25	25	
Naica (Cuale)	Cia. Fresnillo S.A. de C.V.	Pb, Zn, Ag, Cd, Au	1951	Operating	Part of Fresnillo operations. Cuale mine closed.	Concentrates	3	3	3	3	3	3	
Neg Santa Maria	Negociacion Minera Santa Maria de la Paz	Pb, Zn, Ag, Au	1770	Operating	Cu mining increased in 1993.	Concentrates	3	3	3	3	3	3	
San Martin	Industria Minera Mexico S.A.	Ag, Zn	1958	Operating		Concentrates	20	20	20	20	20	20	
Santa Barbara	Minerales Metalicos del Norte S.A.	Zn, Pb, Ag, Au	1921	Operating		Concentrates	8	7	7	7	7	7	
-----													
Operating + Developing								390	431	431	431	431	431

Mine	Operator/Owner(s)	Other Metals	Start Up	Current Status	Short Remarks	Source	2000	2001	2002	2003	2004	2005
Alamo Dorado	Corner Bay Minerals		2010	Exploration								
Buena Vista	Grupo Mexico	Zn, Ag		Exploration								
Cerro Verde	Corner Bay Minerals			Exploration								
El Salvador/ San Nicolas	Teck Corp.	Zn, Au, Ag		Feasibility								
Luz del Cobre (San Antonio)	Golden News Resources	Au		Exploration								
Milpillas	Grupo Penoles			Exploration								
Opata	JABA Inc., Phelps Dodge	Mo		Exploration								
Piedras Verdes	Phelps Dodge Corp. (70%), AZCO Mining (30%)			Exploration	Acquired from Azco in 1995.							
Santo Tomas	Exall Resources	Au, Ag		Feasibility	Development dependent on copper prices.							
Suaqui Verde	Azco Mining			Exploration								
					Exploration + Feasibility		0	0	0	0	0	0
					Operating + Developing		390	431	431	431	431	431
					Total Mexico		390	431	431	431	431	431
<b>Mongolia</b>												
Erdenet	Erdenet Mining & Concentrating	Mo, Te, Se, Ag, Au 1978		Operating	Plan to build 50,000 tpy smelter.	Concentrates	140	140	140	140	140	140
						SX-EW	4	5	5	22	22	22
						Operating + Developing	144	145	145	162	162	162
Turquoise Hill (Oyu Tolgoi)	Ivanhoe Mines, BHP-Billiton	Au		Exploration								
					Exploration + Feasibility		0	0	0	0	0	0
					Total Mongolia		144	145	145	162	162	162

Mine	Operator/Owner(s)	Other Metals	Start Up	Current Status	Short Remarks	Source	2000	2001	2002	2003	2004	2005
<b>Morocco</b>												
Guemassa	BRPM, ONA	Pb, Zn		Operating		Concentrates	7	7	7	7	7	7
-----												
Operating + Developing							7	7	7	7	7	7
-----												
Total Morocco							7	7	7	7	7	7
<b>Myanmar</b>												
Monywa	Ivanhoe Myanmar (50%), Mining Enterprise No.1	Ag	1983	Operating	Expansion to 35,000 tpy deferred for the development of Letpadaung.	SX-EW	28	30	30	30	30	30
-----												
Operating + Developing							28	30	30	30	30	30
-----												
Letpadaung	Ivanhoe Myanmar Holdings (50%), Mining Enterprise No.1		2003	Feasibility	Belongs to Monywa complex.	SX-EW					125	125
-----												
Exploration + Feasibility							0	0	0	0	125	125
-----												
Total Myanmar							28	30	30	30	155	155

Mine	Operator/Owner(s)	Other Metals	Start Up	Current Status	Short Remarks	Source	2000	2001	2002	2003	2004	2005
<b>Namibia</b>												
Kombat/Khusib	Ongopolo	Ag, Pb, Zn, Cd	1905	Operating		Concentrates	2	10	10	10	10	10
Otjihase	Ongopolo	Ag, Au	1975	Operating		Concentrates	2	15	15	15	15	15
-----												
Operating + Developing							4	25	25	25	25	25
<hr/>												
Haib Mine	Haib Copper Mining and Exploration Co.	Au, Mo		Feasibility	The future of the project is uncertain.							
-----												
Exploration + Feasibility							0	0	0	0	0	0
-----												
Total Namibia							4	25	25	25	25	25
<hr/>												
<b>Nicaragua</b>												
Bonanza	Corp. Nicaraguense de Desarrollo Minera e Hidrocarburos	Au, Ag	1988	Operating	Reopened by past producer.	Concentrates	1	1	1	1	1	1
-----												
Operating + Developing							1	1	1	1	1	1
-----												
Total Nicaragua							1	1	1	1	1	1
<hr/>												
<b>North Korea</b>												
Komdok	North Korean Government			Operating		Concentrates	15	15	15	15	15	15
-----												
Operating + Developing							15	15	15	15	15	15
-----												
Total North Korea							15	15	15	15	15	15

Mine	Operator/Owner(s)	Other Metals	Start Up	Current Status	Short Remarks	Source	2000	2001	2002	2003	2004	2005
<b>Pakistan</b>												
Saindak	Resource Development Corp. (RDC)	Ag, Au, Mo, Pyrite, Magnetite	1995	Developing	Was closed 1996, new start for 2002/2003 is underway.	Concentrates	0	0	0	16	16	16
					Operating + Developing		0	0	0	16	16	16
					Total	Pakistan	0	0	0	16	16	16
<b>Panama</b>												
Cerro Colorado	Aur Resources Inc.			Exploration								
Cerro Petaquilla	Adrian Resources (52%), Minnova Panama (48%)	Mo, Au, Ag	2003	Feasibility	4 deposits. Botija will be mined first.	Concentrates				40	100	100
					Exploration + Feasibility		0	0	0	40	100	100
					Total	Panama	0	0	0	40	100	100
<b>Papua New Guinea</b>												
OK Tedi	Sustainable Development Program Co. (52%), Inmet (18%), PNG Govt (30%)	Au, Mo	1987	Operating		Concentrates	210	210	160	160	160	160
					Operating + Developing		210	210	160	160	160	160
Frieda River	Highlands Pacific (86%), OMRD-Japanese Consortium (14%)	Au		Exploration	Plans are to have mine and cathode plant operating by 2003.							
Nena Cu/Au Prospect	Highlands Gold Ltd.	Au		Feasibility	Pre feasibility completed mid-1995.							
					Exploration + Feasibility		0	0	0	0	0	0
					Total	Papua New Guinea	210	210	160	160	160	160

<i>Mine</i>	<i>Operator/Owner(s)</i>	<i>Other Metals</i>	<i>Start Up</i>	<i>Current Status</i>	<i>Short Remarks</i>	<i>Source</i>	<i>2000</i>	<i>2001</i>	<i>2002</i>	<i>2003</i>	<i>2004</i>	<i>2005</i>
<b>Peru</b>												
Antamina	Billiton (33.75%), Teck (22.5%), Noranda (33.75%), Mitsubishi (10%)	Zn, Mo, Ag	2001	Operating	Concentrates cannot be treated by local refineries because of impurities.	Concentrates		150	290	310	310	310
Cerro Verde I Leach Pad	Phelps Dodge (82.4%)	Ag	1977	Operating		SX-EW	65	75	84	84	84	84
Chicrin (Atacocha)	Cia. Minera Atacocha S.A.	Ag, Pb, Zn, Au	1936	Operating		Concentrates	2	2	2	2	2	2
Cobriza	Doe Run	Ag	1967	Operating	Bought by Doe Run July 1998 for US\$7.5 million.	Concentrates	30	30	30	30	30	30
Condestable	Cia. Minera Condestable S.A. (CORMIN)		1981	Operating		Concentrates	5	5	5	5	5	5
Cuajone	Grupo Mexico (54.1%), Marmon Corp. (15%), Phelps Dodge (13.9%)	Mo, Ag	1977	Operating	Leach ore for Toquepala.	Concentrates	182	182	175	175	175	175
						SX-EW	5	5	5	5	5	5
Julcani	Cia. de Minas Buenaventura S.A.	Ag, Pb, Au	1940	Operating	Principally an Ag/Pb mine.	Concentrates	1	1	1	1	1	1
Minsur (St. Raphael)	Cia. Minero St. Raphael	Ag	1960	Operating	Closed 1992. Mine since reopened.	Concentrates	2	2	2	2	2	2
Quiruvilca	Pan American Silver	Ag, Zn, Pb, Au	1922	Operating		Concentrates	1	1	1	1	1	1
Raura	Cia. Minera Raura S.A.	Pb, Zn, Ag	1962	Operating		Concentrates	2	2	2	2	2	2
San Cristobal	Minera Volcania	Pb, Zn	1970	Operating	Was sold by Centromin in 1997.	Concentrates	2					
Small Mines				Operating		Concentrates	15	12	10	10	10	10
Tintaya/Chabucas	BHP Copper Co.	Au, Ag	1985	Operating	2002 production cutback of 45,000 tpy Cu.	Concentrates	75	80	80	80	80	80
						SX-EW			17	34	34	40
Toquepala	Southern Peru Copper Corp.	Mo, Ag	1959	Operating		Concentrates	100	110	105	105	105	105
					Treats Cuajone ore.	SX-EW	62	62	62	51	51	51
Yauli	Minera Yauli S.A.		1970	Closed (2000)		Concentrates	1					
Yauricocha	San Ignacio de Morococha	Zn, Ag, Pb	1970	Operating	Privatised in 1997.	Concentrates	2	2	2	2	2	2

Mine	Operator/Owner(s)	Other Metals	Start Up	Current Status	Short Remarks	Source	2000	2001	2002	2003	2004	2005
					Operating + Developing		551	720	872	898	898	904
Berenguela	Minero Peru	Ag, Mn	2005	Exploration	Torco process studied and dismissed.	Concentrates						10
Cerro Corona	Minera Corona	Au		Feasibility	Expected annual capacity is 52,000t.							
Cerro Negro	Phelps Dodge		2001	Feasibility	Will share SX-EW facilities with Cerro Verde.							
Jhuamarca/Canariaco	Placer Dome	Ag, Au	2005	Exploration	Reserves being proved.	Concentrates						5
La Granja	BHP Billiton	Mo, Ag, Au		Feasibility	Project not to be continued by BHP Billiton due to high investments costs (US\$3 billion).							
Michiquillay	Minero Peru	Mo, Au, Ag	2004	Exploration	Bidding process underway.							
Pashpap	Minero Peru	Mo	2005	Exploration	Start up predicated on shortage of Cu.	Concentrates						20
Quellaveco	Anglo American	Ag, Mo		Exploration								
Rio Blanco	Phelps Dodge (60%), Minera Kori Rumi (Gitennes)	Mo		Exploration								
					Exploration + Feasibility		0	0	0	0	0	35
					Operating + Developing		551	720	872	898	898	904
					Total Peru		551	720	872	898	898	939



Mine	Operator/Owner(s)	Other Metals	Start Up	Current Status	Short Remarks	Source	2000	2001	2002	2003	2004	2005
<b>Philippines</b>												
Carmen (Atlas Ops/ Toledo/Cebu)	Minor Mining (55%)	Au, Ag, Pyrite	2002	Developing	Mine might restart in 2002.	Concentrates			50	70	70	70
Lepanto (Benguet)	Lepanto Consolidated Benguet Mining Co.	Au, Ag	1865	Operating	Copper concentrates production restarted May 2000.	Concentrates	1	2	2	2	2	2
Maricalum (Sipalay)	Maricalum Mining Corp.	Ag, Au, Mo	1960	Closed (2001)		Concentrates	35	25				
Santo Tomas II (Benguet)/Padcal	Philex Mining Corp.	Au, Ag	1958	Operating		Concentrates	26	22	22	22	22	22
Operating + Developing							62	49	74	94	94	94
Dinkidi (Didipio)	Climax Mining (42%), LG International (24%)	Au		Feasibility	Production could start with 16,000 tpy.							
KingKing (Benguet)	TVI Pacific/Echo Bay Mines JV.	Au		Feasibility	Costs of project are US\$600-650 million.							
Rapu Rapu	Rapu Rapu Mining (75%), TVI Mining (25%)	Zn, Au, Ag		Feasibility	Received environmental compliance certificate.							
Tampakan	WMC	Au		Exploration								
Exploration + Feasibility							0	0	0	0	0	0
Operating + Developing							62	49	74	94	94	94
Total Philippines							62	49	74	94	94	94
<b>Poland</b>												
Lubin	KGHM Polzka Miedz S.A.	Ag,Pb,Ni, Au,Se	1966	Operating		Concentrates	85	85	85	85	85	85
Polkowice-Sieroszowice	KGHM Polska Miedz S.A.	Ag, Ni, Pb, Au,Se	1968	Operating		Concentrates	142	140	140	140	140	140
Rudna	KGHM Polska Miedz S.A.	Ag, Au, Ni, Pb, Se	1974	Operating		Concentrates	235	245	225	225	225	225
Operating + Developing							462	470	450	450	450	450
Total Poland							462	470	450	450	450	450

Mine	Operator/Owner(s)	Other Metals	Start Up	Current Status	Short Remarks	Source	2000	2001	2002	2003	2004	2005
<b>Portugal</b>												
Neves Corvo	Somincor - Sde. Mineira de Neves Corvo, S.A.	Ag, Sn	1988	Operating	High grade massive sulfide ore bodies.	Concentrates	76	84	85	85	85	85
Panasqueira	Beralt Tin & Wolfram S.A.	W, Sn	1895	Operating	By-product markets affect production.	Concentrates	1	1	1	1	1	1
Operating + Developing							77	85	86	86	86	86
Total Portugal							77	85	86	86	86	86
<b>Romania</b>												
Balan/ Ursului/ Fundu M	Romanian Government	Zn, Pb, Ag, Au, As		Operating		Concentrates	5	5	5	5	5	5
Moldova/ Florimunda/ Sasca	Romanian Government	Pb, Zn, Ag, Au, Mo		Operating		Concentrates	12	12	12	12	12	12
Rosia Poieni	Deva Mining Complex	Ag, Au, Mo, Magnetite	1988	Operating		Concentrates	10	10	10	10	10	10
Operating + Developing							27	27	27	27	27	27
Total Romania							27	27	27	27	27	27

Mine	Operator/Owner(s)	Other Metals	Start Up	Current Status	Short Remarks	Source	2000	2001	2002	2003	2004	2005
Russia												
Aleksandrinsky	Aleksandrinskaya Mining Co.	Zn, Ag	1996	Operating	Ore processed at other locations.	Concentrates	15	15	15	15	15	15
Buribai (Buribay)	Buribai Mining	Pb, Zn		Operating	Oktyabrsky Mine.	Concentrates	5	5	5	5	5	5
Dombarovsky (Letneye/Osenneye)	Gai Combine		2000	Operating		Concentrates	10	15	20	20	20	20
Gai (Gaisky)	Urals Mining and Metallurgical Comp. (UGMK)	Pb, Zn, Ag, Au, Co, As, S, Ga,	1959	Operating	Includes Letneye and Osenneye deposits.	Concentrates	60	60	70	80	80	80
Kirovgrad	Kirovgrad Copper	Pb, Zn	1931	Operating	Levikhinsky, Lomovksy, Degtyarsky, Jusinsky Mines.	Concentrates	4	4	4	4	4	4
Krasnouralsk/ Safyanovskaya	Krasnouralsk Mining	Pb, Zn	1926	Operating	Safyanovskaya copper-pyrites ores processed.	Concentrates	5	5	5	5	5	5
Norilsk Mills (Oktyabrsky, Komsomolsky, Taymirsky)	Norilsk Mining & Metallurgical Combine	Ni	1948	Operating		Concentrates	400	400	400	400	400	400
Pechenganickel Complex	Pechenganickel Combine	Ni	1939	Operating	Includes Zapolyamoye Mine/Severonikel.	Concentrates	15	5	5	5	5	5
Safyanovskaya	Uralektromed (40%)	Zn	2000	Operating		Concentrates	10	30	30	30	35	35
Sibayskaya	Bashkirsky Combine	Pb, Zn	1959	Operating	Sibai open pit redefined. UG planned.	Concentrates	23	23	23	23	23	23
Solnechny	Solnechny Mining Combine	Sn, As		Operating	High arsenic ores handled.	Concentrates	11	11	11	11	11	11
Sorsky	Sorsky Mining	Mo		Operating	Kiyalykh-Uzeh deposit in Siberia.	Concentrates	1	1	1	1	1	1
Sredneuralsk (Degtyarka)	Sredneuralsk Copper	Pb, Zn	1937	Operating	Uchali UG mine behind schedule.	Concentrates	1	1	1	1	1	1
Tarnerskoye/ Shemurskoye/ Severnoye	Uralelectromed/ Svyatogor/ Ivdel	Pyrite, Zn, Ag, Au, Cd, Se, Te	2004	Developing	Owners won tender which requires production to start in 2002.	Concentrates			30	50	50	50
Turinsk	Krasnouralsk Mining		1944	Operating		Concentrates	4	4	4	4	4	4
Uchalinsk	Uchalinsky Mining	Pb, Zn	1968	Operating	Uzelginsky UG mine commissioned 1992.	Concentrates	27	27	27	27	27	27
Urupsky/Bykovsky	Urupsky Mining	Zn, Cd, S, Ga, Ge, In, Se, Te		Operating	.	Concentrates	5	5	5	5	5	8
Vsokogorsky Plant	Vsokogorsky Mining and Beneficiation Combine (51%)	Iron	1995	Operating	Processing iron ore waste pile for copper.	Concentrates	10	10	10	10	10	10

Mine	Operator/Owner(s)	Other Metals	Start Up	Current Status	Short Remarks	Source	2000	2001	2002	2003	2004	2005
					Operating + Developing		606	621	666	696	701	704
Chebachye	Verkneurskaya			Feasibility								
Mikevskoje	South Ural Mining Comp.			Exploration								
Novoshaitaisky	Kirovgrad			Feasibility	Development stopped . Could produce 5,000 tpy.							
Podolsk/ Yubileynoe/ Sibai	Bashkirsky Combine	Zn, Ag		Feasibility	Podolsk feasibility completed 1992.							
Tarutinskoye	South Ural Mining Co.	Au		Exploration								
Tominskoye	South Urals Mining Co.			Exploration								
Udokan	Transbaikal Mining Co. (14.5% Urals Mining and Metals Co.)	Mo, Ag		Feasibility	Bankable feasibility study completed.							
					Exploration + Feasibility		0	0	0	0	0	0
					Operating + Developing		606	621	666	696	701	704
					Total	Russia	606	621	666	696	701	704
Saudi Arabia												
Al Masane	Arabian Shield Co.	Zn, Au, Ag	1998	Operating		Concentrates	9	9	9	9	9	9
						Operating + Developing	9	9	9	9	9	9
Jubal Sayid	Alujain Corp. (60%)	Au, Ag		Exploration	Development plans on hold.							
						Exploration + Feasibility	0	0	0	0	0	0
					Total	Saudi Arabia	9	9	9	9	9	9

Mine	Operator/Owner(s)	Other Metals	Start Up	Current Status	Short Remarks	Source	2000	2001	2002	2003	2004	2005
<b>South Africa</b>												
Black Mountain	Black Mountain Mineral Dev. Co.	Pb, Zn, Ag	1979	Operating	Mine life extended to 2013.	Concentrates	6	6	6	6	6	6
Foskor (Palabora)	Industrial Development Corp. of SA Ltd.	Ag, Au, Ph	1855	Operating	Underground operation replace open pit.	Concentrates	12	12	12	12	12	12
Impala Platinum	Impala Platinum Ltd.	Pt		Operating	By-product of Pt.	Concentrates	7	7	7	7	7	7
Maranda	Metorex	Zn	1991	Operating		Concentrates	2	2	2	2	2	2
Marikana/ Transvaal	Western Platinum	Pt	1985	Operating	By-product of Pt.	Concentrates	2	2	2	2	2	2
Nigramoep	Metorex (81.5%)		1992	Operating	To be closed in first quarter 2002 as ore reserves are depleted.	Concentrates	15	15				
O Okiep	Metorex (Crew Development Corp.) 89%	Au, Ag		Developing	A tailings plant producing 10,000 tpy of copper to start in 2002.	SX-EW			10	10	10	10
Palabora	Palabora Mining Co. Ltd.	Ag, Au, Ni, Pg, Zr, 1965 U		Operating	Underground to start as open pit closes in 2002.	Concentrates	130	110	90	80	80	80
Platinum Mines	Rustenberg-Impala-West Plat	Pt, Au, Rd, Ni, Pd		Operating		Concentrates	18	18	18	18	18	18
Potgietersrus	Potgietersrus Platinum Ltd.	Pt, Rd, Au, Ni, Pd	1993	Operating		Concentrates	4	4	4	4	4	4
Rustenburg	Rustenburg Platinum Mines Ltd.	Pt, Ni, Au		Operating	By-product of Pt, Ni and Au.	Concentrates	7	7	7	7	7	7
Operating + Developing							202	182	157	147	147	147
Total South Africa							202	182	157	147	147	147

Mine	Operator/Owner(s)	Other Metals	Start Up	Current Status	Short Remarks	Source	2000	2001	2002	2003	2004	2005
<b>Spain</b>												
Almagrera Complex	Navan Resources plc.	Zn, Pb, Ag	1983	Closed (2001)	On care & maintenance.	Concentrates	4	5	10	10	10	10
Cerro Colorado (Huelva)	Minas de Rio Tinto S.A.	Pb, Zn, Ag, Au, Pyrite	1970	Closed (2000)	Mine was restarted in February 2000 & closed September 2000 again.	Concentrates	16					
Los Frailes	Boliden	Pb, Zn	1997	Closed (2001)		Concentrates	3	4				
----- Operating + Developing							23	9	10	10	10	10
Las Cruces	MK Gold Co.			Feasibility	Eventual production of 65,000 tpy of cathode over 14 years.							
----- Exploration + Feasibility							0	0	0	0	0	0
----- Total Spain							23	9	10	10	10	10
<b>Sweden</b>												
Aitik	Boliden Minerals AB	Au, Ag	1968	Operating		Concentrates	68	68	68	68	68	65
Boliden Area	Boliden Minerals AB	Au, Ag, Zn, Pb, Pyrite	1952	Operating	Renstrom, Udden, Langsele and Langdal Mines.	Concentrates	10	9	9	8	7	7
Garpenberg	Boliden Minerals AB	Pb, Zn	1940	Operating		Concentrates	1	1	1	1		
----- Operating + Developing							79	78	78	77	75	72
----- Total Sweden							79	78	78	77	75	72

Mine	Operator/Owner(s)	Other Metals	Start Up	Current Status	Short Remarks	Source	2000	2001	2002	2003	2004	2005
<b>Thailand</b>												
Puthep	Padaeng Industry Co.			Exploration	Could eventually produce 30,000 tpy of cathode.							
					Exploration + Feasibility		0	0	0	0	0	0
					Total Thailand		0	0	0	0	0	0
<b>Turkey</b>												
Asikoy (Kure)	Etiholding	Pyrite		Operating		Concentrates	8	8	8	8	8	8
Cakmakkaya (Murgul)	Murgul Mining Ops ( Black Sea Copper)			Operating		Concentrates	25	25	25	25	25	25
Cayeli Bakir	Inmet Mining Corp. (48%)	Zn, Au, Ag, Pyrite	1994	Operating	Mine life about 25 years.	Concentrates	38	35	40	40	40	40
Damar (Murgul)	Murgul Mining Ops (Black Sea Copper)			Operating		Concentrates	6	4	4	4	4	4
					Operating + Developing		77	72	77	77	77	77
					Total Turkey		77	72	77	77	77	77

Mine	Operator/Owner(s)	Other Metals	Start Up	Current Status	Short Remarks	Source	2000	2001	2002	2003	2004	2005
United States												
Bagdad	Phelps Dodge Corp.	Mo, Ag		Operating	Concentrates production temporarily cut by 50%.	Concentrates	101	110	110	110	110	110
						SX-EW	10	10	10	10	10	10
Bingham Canyon	Kennecott	Mo, Ag, Au	1904	Operating		Concentrates	310	310	290	290	290	290
Chino (Santa Rita)	Phelps Dodge/Mitsubishi	Mo, Au, Ag	1911	Operating	On care & maintenance (2002).	Concentrates	90	90	90	90	90	90
						SX-EW	65	55	55	55	55	55
Continental East	Montana Resources Corp./Grupo Mexico	Mo, Ag, Au	1984	Closed (2000)	On care & maintenance.	Concentrates	50	50	50	50	50	50
Johnson Camp	Nord Resources		1990	Operating	Mine on care & maintenance. Little production from residual leach.	SX-EW	2	1	1	8	8	8
Lisbon Valley	Summo Minerals Corp.		1999	Developing	EIS approved, finance delay.	SX-EW				9	9	9
Miami	Phelps Dodge Corp.		1908	Operating	Closed temporarily (2002).	SX-EW	75	50	50	50	50	50
Miami Leach	BHP Copper Co.		1963	Operating		SX-EW	12	12	12	12	12	12
Mineral Park	Equatorial Mining	Ag		Operating		SX-EW	5	5	5	5	5	5
Mission (Eisenhower, Pima, San Xavier)	Grupo Mexico	Ag, Mo	1908	Operating	Current production rate is 40,000 tpy copper in concentrates.	Concentrates	100	70	70	70	70	70
Morenci	Phelps Dodge/Sumitomo	Mo, Au, Ag, Se	1937	Operating	Output totally converted to SX-EW by 2002.	Concentrates	150	50				
						SX-EW	300	340	380	380	400	400
Other minor producers	Various	Zn, Pb, Ag, Au		Operating	About 15 small producers of by-product Cu.	Concentrates	13	13	13	13	13	13
Pinto Valley	BHP Copper Co.	Mo, Au, Ag	1911	Operating	Closure of sulfide mill (3/98) due to low prices.	SX-EW	8	8	8	8	8	8
Ray	Grupo Mexico	Au, Pb, Ag, Mo	1911	Operating		Concentrates	120	100	100	100	100	100
					1999 tankhouse expansion. Higher acid concentration.	SX-EW	47	47	47	47	47	47



Mine	Operator/Owner(s)	Other Metals	Start Up	Current Status	Short Remarks	Source	2000	2001	2002	2003	2004	2005	
San Manuel/Kalamazoo	BHP Copper Co.	Mo, Au, Ag	1956	Closed (2001)	Concentrate production ceased 1999.	SX-EW	25						
Sierrita	Phelps Dodge	Mo (0.035%), Ag	1970	Operating	Concentrates production temporarily cut by 50% or 51,000 tpy.	Concentrates	102	102	102	102	102	102	
						SX-EW	18	18	18	18	18	18	
Silver Bell	Grupo Mexico		1954, 1997	Operating	Producing 15% over design capacity.	SX-EW	19	19	19	19	19	19	
Tonopah	Equatorial Mining		2000	Operating	.	SX-EW	15	23	23	23	23	23	
Tyrone Leach SX-EW	Burro Chief Copper Co. (Phelps Dodge)		1984	Operating		SX-EW	75	75	75	75	75	75	
Yerington (MacArthur)	Arimetco International Inc.		1956	Operating		SX-EW	11	1	1	1	1	1	
-----													
Operating + Developing								1,723	1,559	1,529	1,545	1,565	1,565
Carlota	Cambior Inc.			Feasibility	Project delayed indefinitely.								
Copper Creek	AMT International Mining, BHP	Mo		Feasibility	Feasibility for phase I. Expecting decision of joint venture partner BHP.								
Lockwood	Island Arc and Formosa Resources	Zn, Au, Ag	2005	Exploration	Exploration drilling continuing.								
Montanore (Noxon)	Montana Reserves Co. (Noranda 55%)	Ag	2005	Feasibility	Mining permit issued. Project postponed.								
OK Mine	Nevada Star Resource Corp.			Feasibility									
Sufford	Phelps Dodge Corp.			Feasibility									
Sullivan/Paradise Peak (Au)	Arimetco International Inc.	Au		Feasibility	Company in bankruptcy.								
-----													
Exploration + Feasibility								0	0	0	0	0	0
Operating + Developing								1,723	1,559	1,529	1,545	1,565	1,565
-----													
Total United States								1,723	1,559	1,529	1,545	1,565	1,565

Mine	Operator/Owner(s)	Other Metals	Start Up	Current Status	Short Remarks	Source	2000	2001	2002	2003	2004	2005
Uzbekistan												
Almalyk (Kalmakyr, Sary-Cheku)	Almalyk Mining	Mo	1953	Operating	Modernisation and expansion underway.	Concentrates	100	100	120	120	150	150
					Operating + Developing		100	100	120	120	150	150
Khandiza		Zn, Pb, Ag		Feasibility	Feasibility study submitted by Oxus Resources.							
					Exploration + Feasibility		0	0	0	0	0	0
					Total	Uzbekistan	100	100	120	120	150	150
Venezuela												
Las Cristinas	Placer Dome (70%), CVG (30%)	Au	2002	Developing		Concentrates			5	30	30	30
					Operating + Developing		0	0	5	30	30	30
					Total	Venezuela	0	0	5	30	30	30
Vietnam												
Sin Quen	Vietnam National Mineral Corp. (Vimico)			Exploration								
					Exploration + Feasibility		0	0	0	0	0	0
					Total	Vietnam	0	0	0	0	0	0

<i>Mine</i>	<i>Operator/Owner(s)</i>	<i>Other Metals</i>	<i>Start Up</i>	<i>Current Status</i>	<i>Short Remarks</i>	<i>Source</i>	<i>2000</i>	<i>2001</i>	<i>2002</i>	<i>2003</i>	<i>2004</i>	<i>2005</i>	
<i>Yugoslavia</i>													
Cerovo	Rudarsko-Topionicarski Basen Bor (RTB Bor)		1994	Operating		Concentrates	10	10	10	10	10	10	
Majdanpek	Rudarsko-Topionicarski Basen Bor (RTB Bor)	Mo, Magnetite	1961	Operating		Concentrates	65	65	65	65	65	65	
Veliki Krivelj	Rudarsko-Topionicarski Basen Bor (RTB Bor)	Mo	1982	Operating		Concentrates	35	35	35	35	35	35	
-----													
Operating + Developing								110	110	110	110	110	110
-----													
Total Yugoslavia								110	110	110	110	110	110

Mine	Operator/Owner(s)	Other Metals	Start Up	Current Status	Short Remarks	Source	2000	2001	2002	2003	2004	2005
<b>Zambia</b>												
Baluba	Roan Antelope Mining (Binani Group)	Co, Au, Ag	1973	Closed (2000)	Production stopped August 2000.	Concentrates	30					
Bwana Mkubwa	First Quantum Minerals		1998	Operating		SX-EW	10	10	10	10	10	10
Chambishi	China's Non-Ferrous Metal Industry's Co. (85%)		1965, 2002	Operating		Concentrates			10	20	20	47
Chibuluma South	Metorex (41% Crew Development Corp.)	Co	2001	Operating	On care & maintenance (2002).	SX-EW		2	16	16	16	16
Chibuluma West	Metorex (41% Crew Development Corp.)	Co	1955	Operating	Limited lifetime.	Concentrates	12	12	12	12	12	12
Konkola (Bancroft) No. 1 & 3	Anglo American (65%), IFC (7.5%), Commonwealth Dev. Corp. (7.5%)	Ag, Se	1957	Operating	High cost mine due to extreme wetness.	Concentrates	60	75	80	80	80	80
Luanshya	Binani Group	Co	1931	Closed (2000)	In receivership. Up for sale.	Concentrates	25					
Mindola	Mopani Copper Mines plc. (90%), Zambia Consolidated Copper Mines Ltd. (ZCCM-10%)		1933	Operating	Feasibility for deep mining project completed.	Concentrates	40	40	50	60	70	70
Mufulira	Mopani Copper Mines plc. (90%) (First Quantum 49%, Glencore 51%), Zambia Consolidated Copper Mines Ltd. - ZCCM (10%)	Ag	1933	Operating	Capacity is Cu in ore to mill.	Concentrates	50	50	70	80	80	80
Nampundwe	Anglo American, Zambia Consolidated Copper Mines Ltd. (ZCCM)	Pyrite	1930	Operating		Concentrates	1	1	1	1	1	1
Nchanga	Anglo American (80%), Zambia Consolidated Copper Mines Ltd. - ZCCM	Co, Ag, Se	1936	Operating	Underground operation accounts for 45% of total. Lifetime of open pit extended to 2005.	Concentrates	120	140	150	150	150	150
Nchanga TLP	Anglo American (80%), Zambia Consolidated Copper Mines Ltd. - ZCCM		1974	Operating	High grade SX-EW closed in 1992.	SX-EW	70	80	80	80	80	80
Nkana Slag Dumps (Chambishi)	Avmin	Co		Operating		SX-EW		3	4	4	7	7
Nkana South & Central Orebodies	Mopani Copper Mines plc (90%) (First Quantum-49%, Glencore -51%)	Co, Au, Ag	1931	Operating	Capacity for South and Central ore bodies.	Concentrates	50	50	70	70	75	75

Mine	Operator/Owner(s)	Other Metals	Start Up	Current Status	Short Remarks	Source	2000	2001	2002	2003	2004	2005		
							-----							
							Operating + Developing							
							468	463	553	583	601	628		
Konkola Deep	Anglo American (65%), IFC (7.5%), Commonwealth Development Corp. (7.5%)	Co		Feasibility	Possible start up 2005/2006.									
Lumwana	Equinox Resources, Phelps Dodge	Au, Co, U		Exploration	Feasibility study underway. Potential production of 106.000 tpy contained copper.									
Mufumbwe	Mufumbwe Zimbabwe			Exploration										
Muliashi				Exploration										
							-----							
							Exploration + Feasibility							
							0	0	0	0	0	0		
							Operating + Developing							
							468	463	553	583	601	628		
							-----							
							Total Zambia		468	463	553	583	601	628
<hr/>														
<b>Zimbabwe</b>														
Bindura	Bindura Nickel Corp. Ltd.	Ni, Co		Operating	Trojan, Epoch and Shangani Mines.	Concentrates	2	2	2	2	2	2		
						SX-EW	1	1	1	1	1	1		
Hartley Platinum Mine	Delta Gold (30%), BHP	Ni, Au, Co, PGM	1996	Operating	Principally a Pt mine.	Concentrates	2	2	2	2	2	2		
Sanyati Oxide	Reunion Mining plc	Zn, Co, Pb (later)	1917	Operating	Start up November 1995. Expansion under study.	SX-EW	8	8	8	8	8	8		
							-----							
							Operating + Developing							
							13	13	13	13	13	13		
							-----							
							Total Zimbabwe		13	13	13	13	13	
<hr/>														
							<i>World Total Operating + Developing</i>							
							14,372	14,711	15,008	15,659	15,794	15,812		
							-----							
							<i>World Total Exploration + Feasibility</i>							
							0	0	0	141	509	672		
							-----							
							<i>World Total</i>							
							14,372	14,711	15,008	15,800	16,303	16,484		

Table 6. WORLD COPPER SMELTERS CAPACITIES 2000 to 2005

<i>Smelters</i>	<i>Owner(s)</i>	<i>Process</i>	<i>Raw Materials</i>	<i>Current Status</i>	<i>Short Remarks</i>	<i>2000</i>	<i>2001</i>	<i>2002</i>	<i>2003</i>	<i>2004</i>	<i>2005</i>
<b>Armenia</b>											
Mannes & Vallex (Ararat Region)	Armenia/U.S. Joint Venture	Flash smelter	Concs.	Operating	Reopened February 2000.	8	12	12	12	12	12
Operating + Developing						8	12	12	12	12	12
Total Armenia						8	12	12	12	12	12
<b>Australia</b>											
Mount Isa	Mount Isa Mines Ltd.	Isasmelt/ Reverberatory	Concs.	Operating		250	270	270	270	270	270
Olympic Dam	Western Mining	Outokumpu Continuous	Concs.	Operating		200	220	230	240	240	250
Port Kembla	Furukawa (52.5%), Nittetsu Mining (20%), Nissho Iwai (17.5%), Itochu (10%)	Noranda Continuous	Concs., Scrap	Operating		60	120	120	120	140	140
Operating + Developing						510	610	620	630	650	660
Total Australia						510	610	620	630	650	660
<b>Austria</b>											
Brixlegg	Montanwerke Brixlegg	Blast Furnace (S)	Scrap, Blister	Operating		85	85	85	85	85	85
Operating + Developing						85	85	85	85	85	85
Total Austria						85	85	85	85	85	85
<b>Belgium</b>											
Beerse	La Metallo Chimique S.A.	TBRC (S)	Scrap	Operating		150	150	150	150	150	150
Hoboken	Umicore	Isamelt (S)	Scrap	Operating		50	50	50	50	50	50
Operating + Developing						200	200	200	200	200	200
Total Belgium						200	200	200	200	200	200

<i>Smelters</i>	<i>Owner(s)</i>	<i>Process</i>	<i>Raw Materials</i>	<i>Current Status</i>	<i>Short Remarks</i>	<i>2000</i>	<i>2001</i>	<i>2002</i>	<i>2003</i>	<i>2004</i>	<i>2005</i>
<b>Botswana</b>											
Selebi-Phikwe	Botswana Consolidated Ltd.	Outokumpu Flash	Ni/Cu/Co Concs.	Operating	Capacity is Cu cont. of Cu/Ni matte.	26	26	26	26	26	26
					Operating + Developing	26	26	26	26	26	26
					<b>Total Botswana</b>	<b>26</b>	<b>26</b>	<b>26</b>	<b>26</b>	<b>26</b>	<b>26</b>
<b>Brazil</b>											
Camacari	Caraiba Metais S.A. (Paranapanema S.A.)	Outokumpu Flash	Concs.	Operating	Expansion planned.	200	220	220	220	220	380
					Operating + Developing	200	220	220	220	220	380
					<b>Total Brazil</b>	<b>200</b>	<b>220</b>	<b>220</b>	<b>220</b>	<b>220</b>	<b>380</b>
<b>Bulgaria</b>											
Eliseina	Eliseina Ltd.	Blast Furnace (S)	Scrap, Pb/Zn clinker	Operating	Black copper from scrap.	14	14	14	14	14	14
UM Pirdop	Umicore (97.5%)	Outokumpu Flash	Concs.	Operating	Further expansion to 300,000 tpy intended.	165	185	185	185	185	185
					Operating + Developing	179	199	199	199	199	199
					<b>Total Bulgaria</b>	<b>179</b>	<b>199</b>	<b>199</b>	<b>199</b>	<b>199</b>	<b>199</b>
<b>Canada</b>											
Flin Flon ( Manitoba)	Hudson Bay Mining & Smelting	Reverberatory	Concs.	Operating	Modernization planned, but delayed indefinitely.	90	90	90	90	90	90
Gaspe Smelter (Quebec)	Noranda Inc.	Reverberatory	Concs.	Operating	Third converter added.	135	135	135	135	135	135
Horne Smelter (Quebec)	Noranda Metallurgy Inc.	Noranda Continuous	Concs., Scrap	Operating	New continuous converter commissioned in 1997.	200	200	200	200	200	200
Kidd Creek (Timmins)	Falconbridge Ltd.	Mitsubishi Continuous	Concs. and Scrap	Operating	Debottlenecking has further increased capacity.	134	155	155	155	155	155
Sudbury (Copper Cliff)	Inco Ltd.	Inco Flash	Cu/Ni Concs.	Operating	Cu content of Cu/Ni concentrates	135	135	135	135	135	135
Sudbury (Falconbridge)	Falconbridge Ltd.	Electric	Ni/Cu Concs.	Operating	Cu content of Cu/Ni concentrates. Copper-nickel matte exported.	20	20	20	20	20	20
					Operating + Developing	714	735	735	735	735	735
					<b>Total Canada</b>	<b>714</b>	<b>735</b>	<b>735</b>	<b>735</b>	<b>735</b>	<b>735</b>

<i>Smelters</i>	<i>Owner(s)</i>	<i>Process</i>	<i>Raw Materials</i>	<i>Current Status</i>	<i>Short Remarks</i>	<i>2000</i>	<i>2001</i>	<i>2002</i>	<i>2003</i>	<i>2004</i>	<i>2005</i>
<b>Chile</b>											
Altonorte (La Negra)	Noranda Chile S.A.	Reverberatory	Concs.	Operating	The existing reverberatory will be replaced with a continuous reactor.	165	165	165	290	290	290
Chagres (Disputada)	Cia. Minera Disputada de las Condes S.A.	Outokumpu Flash	Concs.	Operating	Outokumpu furnace started January 1995.	150	150	160	160	160	160
Chuquicamata	Codelco	Outokumpu/ Teniente Converter	Concs., precipitates	Operating		480	480	500	525	525	525
El Teniente (Caletones)	Codelco Chile	Reverberatory/ Teniente Conv.	Concs.	Operating		390	430	490	490	490	490
Hernan Videla Lira (Paipote)	Empresa Nacional de Minería (ENAMI)	Reverberatory/ Teniente Conv.	Concs.	Operating	Teniente converter start up 1993.	75	75	75	85	85	85
Las Ventanas	Empresa Nacional de Minería (ENAMI)	Teniente Converter	Concs.	Operating	Reverberatory replaced by 2 Teniente converters.	115	115	115	115	115	115
Salvador (Potrerillos)	Codelco Chile	Reverberatory/ Teniente Conv.	Concs.	Operating	Reverberatory will be replaced by Teniente converter by year end 2003.	150	150	180	180	180	150
Operating + Developing						1,525	1,565	1,685	1,845	1,845	1,815
Total Chile						1,525	1,565	1,685	1,845	1,845	1,815



<i>Smelters</i>	<i>Owner(s)</i>	<i>Process</i>	<i>Raw Materials</i>	<i>Current Status</i>	<i>Short Remarks</i>	<i>2000</i>	<i>2001</i>	<i>2002</i>	<i>2003</i>	<i>2004</i>	<i>2005</i>
<b>China</b>											
Baiyin (Jinquan)	Baiyin Non-Ferrous Metals Co. (Local Government)	Flash Smelter	Concs.	Operating		65	65	65	65	65	65
Changzhou Smelter	Local Government	Blast Furnace, Rev.	Concs., Scrap	Operating		35	35	35	35	35	35
Chengdu	Sichuan Copper Nickel Co. (Local Government)	Reverberatory	Cu/Ni Concs.	Operating	Capacity is Cu cont. of Ni concentrates.	3	3	3	3	3	3
Chizhou	Local Government	Blast Furnace	Scrap	Operating		10	10	10	10	10	10
Chongqing	Nanfeng Medecine	Blast Furnace	Scrap	Operating		20	20	20	20	20	20
Dadong	Dongchun Bureau of Mines	Blast Furnace	Concs.	Operating		10	10	10	10	10	10
Daye/ Hubei		Noranda Converter/ Reverberatory	Concs.	Operating		140	150	150	150	150	200
Dongfang	Dongfang Copper Corp.	Blast Furnace	Concs.	Operating		30	30	30	30	30	30
Fuchunjiang	Local Government	Blast Furnace	Concs.	Operating		5	5	5	5	5	5
Guixi	Jiangxi Copper Corp.	Outokumpu Flash	Concs., Scrap	Operating		200	220	250	350	350	350
Houtoushan	Houtoushan Copper Mine	Blast Furnace	Concs.	Operating		10	10	10	10	10	10
Huludao	Huludao Zinc Co.	Blast Furnace	Concs., Scrap	Operating		60	60	60	60	60	60
Jinchang (Tongling II)	Tongling Nonferrous Metals Corp. (52%), Sharpline International (13%)	Reverberatory/ Ausmelt	Concs.	Operating		50	65	65	80	100	100
Jinchuan	Jinchuan Non- Ferrous Metal Co.	Flash Smelter	Concs.	Operating		25	35	50	60	120	120
Jinlong	Tongling Nonferrous Metals Corp. (52%), Sharpline International (13%), Itochu Corp , Sumitomo Corp. and Sumitomo Metal & Mining (35%)	Flash Smelter	Concs.	Operating		100	130	130	150	150	150
Liangshan	Local Government	Blast Furnace	Concs.	Operating		10	10	10	10	10	10
Shenyang	Local Government	Blast Furnace	Concs.	Closed (2000)		60					
Shuikoushan	Shuikoushan Mining Bureau	Reverberatory	Concs.	Operating	If market conditions allow, expansion to 50,000 tpy possible.	6	9	12	12	12	12

<i>Smelters</i>	<i>Owner(s)</i>	<i>Process</i>	<i>Raw Materials</i>	<i>Current Status</i>	<i>Short Remarks</i>	<i>2000</i>	<i>2001</i>	<i>2002</i>	<i>2003</i>	<i>2004</i>	<i>2005</i>
Xichang	Local Government	Blast Furnace	Concs.	Operating		10	10	10	10	10	10
Yantai	Jinpeng Nonferrous Metals	Blast Furnace	Concs.	Operating	Consider installation of new smelting technology.	30	30	35	35	35	35
Yunnan	Yunnan Copper Industry Group (Local Government)	Isasmelt	Concs.	Operating		150	150	230	230	230	250
Zhongtiaoshan (Yanqu)	Zhong Tiaoshan Nonferrous Metals Corp.	Ausmelt	Concs.	Operating		30	30	30	30	30	30
Zhongtiaoshan (Yanqu)	Zhong Tiaoshan Nonferrous Metals Corp.	Reverberatory	Concs., Scrap	Operating	Old (upgraded) plant will continue with new Ausmelt operation.	15	15	15	15	15	15
Zhuzhou	Zhuzhou Smelter Co.	Reverberatory (S)	Concs	Operating	Production may be mostly from scrap.	10	10	10	10	10	10
Operating + Developing						1,084	1,112	1,245	1,390	1,470	1,540
Total China						1,084	1,112	1,245	1,390	1,470	1,540
<b>Congo</b>											
Luilu (Kolwesi) Electrolytic	La Générale des Carrières et des Mines - Gecamines	Electrowinning (LG)	Concs.	Operating	Low Grade SX-EW. Anode caster built in 1990.	30	30	30	30	30	30
Shituru Electrolysis Plant	La Générale des Carrières et des Mines - Gecamines	Electrowinning (LG)	Concs.	Operating	Low Grade SX-EW.	30	30	30	30	30	30
Operating + Developing						60	60	60	60	60	60
Total Congo						60	60	60	60	60	60
<b>Finland</b>											
Harjavalta	Outokumpu Harjavalta Metals Oy	Outokumpu Flash	Concs.	Operating	Considering expansion to 250,000 tpy.	160	160	160	160	160	160
Operating + Developing						160	160	160	160	160	160
Total Finland						160	160	160	160	160	160

<i>Smelters</i>	<i>Owner(s)</i>	<i>Process</i>	<i>Raw Materials</i>	<i>Current Status</i>	<i>Short Remarks</i>	<i>2000</i>	<i>2001</i>	<i>2002</i>	<i>2003</i>	<i>2004</i>	<i>2005</i>
<b>Germany</b>											
Hettstedt	Mansfeld Kupfer und Messing GmbH (MKM)	Reverberatory/ Blast	Matte, Blister, Scrap, Ashes, Residues	Operating		96	96	96	96	96	96
Huettenwerke Kayser	Norddeutsche Affinerie (98%)	Reverberatory/ Blast (S)	Blister, Scrap, Complex Materials.	Operating		170	170	170	170	170	170
Norddeutsche Affinerie	Norddeutsche Affinerie AG	Outokumpu, Contimelt, Electric	Imported Concs., Blister & Scrap	Operating	Further expansion of primary route considered.	420	450	450	450	450	450
Operating + Developing						686	716	716	716	716	716
Total Germany						686	716	716	716	716	716
<b>Hungary</b>											
Csepel	Hungarian Government	Reverberatory (S)	Scrap, Blister	Operating		4	4	4	4	4	4
Operating + Developing						4	4	4	4	4	4
Total Hungary						4	4	4	4	4	4
<b>India</b>											
Birla Copper (Dahej)	Indo Gulf Fertilisers & Chemicals Corp.	Outokumpu Flash	Imported Concs.	Operating	Has own power plant.	100	120	150	150	150	150
Ghatsila Smelter	Hindustan Copper Ltd.	Outokumpu Flash	Concs.	Operating		17	17	17	17	17	17
Jhagadja (Gujarat)	Swil Ltd.	Boliden Process (S)	Scrap, Concs.	Developing	Smelter uses Kaldo technology from Boliden.			50	70	70	70
Khetri	Hindustan Copper Co. Ltd.	Outokumpu Flash	Concs.	Operating		31	31	31	31	31	31
Sterlite Smelter	Sterlite Industries (India) Ltd.	Isasmelt	Concs.	Operating		100	120	150	150	150	150
Operating + Developing						248	288	398	418	418	418
Total India						248	288	398	418	418	418
<b>Indonesia</b>											
Gresik	Mitsubishi (75%), Freeport (25%)	Mitsubishi Flash	Concs.	Operating		180	200	200	200	200	200
Operating + Developing						180	200	200	200	200	200
Total Indonesia						180	200	200	200	200	200

<i>Smelters</i>	<i>Owner(s)</i>	<i>Process</i>	<i>Raw Materials</i>	<i>Current Status</i>	<i>Short Remarks</i>	<i>2000</i>	<i>2001</i>	<i>2002</i>	<i>2003</i>	<i>2004</i>	<i>2005</i>
<b>Iran</b>											
Khaton Abad	National Copper Co. of Iran	Flash Smelter	Concs.	Developing	Feed from Meydouk. Anode output to be exported.				80	80	80
Sar Chesmeh	National Iranian Copper Industry	Reverberatory	Concs.	Operating		160	160	160	160	160	160
Operating + Developing						160	160	160	240	240	240
Total Iran						160	160	160	240	240	240
<b>Italy</b>											
Porto Maghera	SIMAR SpA	Reverberatory/ Kaldo (S)	Scrap, Blister	Closed (2000)	Capacity utilization low due to scrap shortage.	24					
Operating + Developing						24	0	0	0	0	0
Total Italy						24	0	0	0	0	0
<b>Japan</b>											
Ashio/ Tochigi	Furukawa Co. Ltd.	Outokumpu Flash	Scrap	Operating		2	2	2	2	2	2
Besshi/ Ehime (Toyo)	Sumitomo Metal Mining Co. Ltd.	Outokumpu Flash	Concs., Scrap	Operating		300	300	300	300	300	300
Hitachi/ Ibaragi	Nippon Mining & Metals Co. Ltd.	Reverberatory (S)	Concs.	Operating		36	36	36	36	36	36
Kosaka/ Akita	Dowa Mining Co. Ltd.	Outokumpu Flash	Concs., Scrap	Operating		96	96	96	96	96	96
Naoshima/ Kagawa	Mitsubishi Materials Corp.	Mitsubishi Continuous	Concs., Scrap	Operating		270	306	306	306	306	306
Onahama/ Fukushima	Mitsubishi Metal Corp. (49.32%), Dowa Mining Co. (29.75%), Furukawa Co. (7.75%)	Reverberatory	Concs.	Operating		348	348	348	348	348	348
Saganoseki/ Ooita	Nippon Mining & Metals Co. Ltd.	Outokumpu Flash	Concs., Scrap	Operating		450	470	470	470	470	470
Tamano/ Okayama	Hibi Kyodo Smelting Co. Ltd.	Outokumpu Flash	Concs., Scrap	Operating		263	263	263	263	263	263
Operating + Developing						1,765	1,821	1,821	1,821	1,821	1,821
Total Japan						1,765	1,821	1,821	1,821	1,821	1,821

<i>Smelters</i>	<i>Owner(s)</i>	<i>Process</i>	<i>Raw Materials</i>	<i>Current Status</i>	<i>Short Remarks</i>	<i>2000</i>	<i>2001</i>	<i>2002</i>	<i>2003</i>	<i>2004</i>	<i>2005</i>
<b>Kazakhstan</b>											
Balkashmys	Samsung	Reverberatory/ Vanyukov	Concs.	Operating	Two Vanyukov furnaces.	180	200	200	200	200	200
Dzhezkazgan Smelter	Samsung	Electric/ Reverberatory	Concs.	Operating		215	215	215	215	215	215
Irtysk	Kazakhmys (Samsung)	Reverberatory/ Kivcet	Cu/Zn Concs.	Closed (2000)	Converted to lead refinery.	20					
Operating + Developing						415	415	415	415	415	415
Total Kazakhstan						415	415	415	415	415	415
<b>Korea Republic</b>											
Onsan I	LG-Nikko Co. (LG, Nippon Mining)	Outokumpu Flash	Concs., Scrap	Operating		190	190	210	210	210	210
Onsan II	LG-Nikko Co. (LG, Nippon Mining)	Mitsubishi Continuous	Concs.	Operating		220	220	220	250	250	250
Operating + Developing						410	410	430	460	460	460
Total Korea Republic						410	410	430	460	460	460
<b>Mexico</b>											
Celaya	Refineria Cobremex (Cobre de Mexico)	Reverberatory (S)	Scrap, Blister	Operating	Only Anode furnace.	34	34	34	34	34	34
La Caridad	Mexicana de Cobre S. A.	Outokumpu/ Teniente Converter	Concs.	Operating	New Teniente Converter installed late 1996.	400	400	400	400	400	400
San Luis Potosi	Industrial Minera Mexico S.A. de C.V.	Blast Furnace	Concs.	Operating	Environmental concerns lower effective capacity.	36	36	36	36	36	36
Toluca	Cobre de Pasteje Ind. Unidas	Reverberatory (S)	Scrap (15%), Blister (85%)	Operating	Only Anode furnace. Treatment of blister stopped.	60	60	60	60	60	60
Operating + Developing						530	530	530	530	530	530
Total Mexico						530	530	530	530	530	530

<i>Smelters</i>	<i>Owner(s)</i>	<i>Process</i>	<i>Raw Materials</i>	<i>Current Status</i>	<i>Short Remarks</i>	<i>2000</i>	<i>2001</i>	<i>2002</i>	<i>2003</i>	<i>2004</i>	<i>2005</i>
<b>Namibia</b>											
Tsumeb Smelter	Ongopolo Mining and Processing (OMPL)	Reverberatory	Concs.	Operating		30	50	50	50	50	50
					Operating + Developing	30	50	50	50	50	50
					Total Namibia	30	50	50	50	50	50
<b>North Korea</b>											
Hungnam Smelter	North Korean Government	Blast Furnace	Concs., Scrap	Operating		40	40	40	40	40	40
Nampo Smelter	North Korean Government	Blast Furnace	Concs., Scrap	Operating	Associated with large nonferrous metals complex.	40	40	40	40	40	40
					Operating + Developing	80	80	80	80	80	80
					Total North Korea	80	80	80	80	80	80
<b>Oman</b>											
Sohar Copper Smelter	Oman Mining Co.	Electric	Concs.	Operating		35	35	35	35	35	35
					Operating + Developing	35	35	35	35	35	35
					Total Oman	35	35	35	35	35	35
<b>Peru</b>											
Ilo Smelter	Southern Peru Copper Corp.	Reverberatory/ Teniente Conv.	Concs.	Operating		300	350	350	350	350	410
La Oroya Smelter	Doe Run	Reverberatory	Concs.	Operating		80	80	80	80	80	80
					Operating + Developing	380	430	430	430	430	490
					Total Peru	380	430	430	430	430	490
<b>Philippines</b>											
Isabel/ Leyte (PASAR)	Glencore International, Local Group	Outokumpu Flash	Concs.	Operating		190	190	190	190	250	250
					Operating + Developing	190	190	190	190	250	250
					Total Philippines	190	190	190	190	250	250

<i>Smelters</i>	<i>Owner(s)</i>	<i>Process</i>	<i>Raw Materials</i>	<i>Current Status</i>	<i>Short Remarks</i>	<i>2000</i>	<i>2001</i>	<i>2002</i>	<i>2003</i>	<i>2004</i>	<i>2005</i>
<b>Poland</b>											
Glogow I	KGHM	Blast Furnace	Concs., Scrap	Operating	Older of the two Glogow smelters.	220	220	220	220	220	220
Glogow II	KGHM	Outokumpu Flash	Concs., Scrap	Operating		180	180	180	180	180	180
Hutmen	Zakłady Hutniczo-Przetwórcze Metali Nieżelaznych (ZHPMN)	Blast Furnace (S)	Scrap	Operating		9	9	9	9	9	9
Legnica Smelter	KGHM Polska Miedz, S.A. (KGHM)	Blast Furnace	Concs., Scrap	Operating		85	90	90	90	90	90
Operating + Developing						494	499	499	499	499	499
Total Poland						494	499	499	499	499	499
<b>Romania</b>											
Baia Mare	Allied Deals	Outokumpu Flash	Concs.	Closed (2000)	Has environmental concerns.	35					
Zlatna	Zlatna Metallurgical Enterprise for Nonferrous Metals	Reverberatory (S)	Scrap	Operating	Associated with an ingot making plant.	10	10	10	10	10	10
Zlatna Smelter	Zlatna Metallurgical	Outokumpu Flash	Concs.	Operating		40	40	40	40	40	40
Zlatna Smelter	Zlatna Metallurgical	Reverberatory	Concs.	Operating	Handles most difficult concentrates.	13	13	13	13	13	13
Operating + Developing						98	63	63	63	63	63
Total Romania						98	63	63	63	63	63

<i>Smelters</i>	<i>Owner(s)</i>	<i>Process</i>	<i>Raw Materials</i>	<i>Current Status</i>	<i>Short Remarks</i>	<i>2000</i>	<i>2001</i>	<i>2002</i>	<i>2003</i>	<i>2004</i>	<i>2005</i>
<b>Russia</b>											
Karabash Smelter (Urals)	Kyshtym Refinery	Reverberatory	Concs., Scrap	Operating		40	40	50	60	80	80
Kirovgrad (Kalata)	Kirovogradsky JSC	Reverberatory (S)	Scrap (mainly)	Operating	Modernizes technology with the assistance of Mitsui.	150	150	150	150	150	150
Krasnouralsk Smelter (Urals)	Krasnouralsk Copper (Svyatogor)	Reverberatory	Concs.	Operating	Feed shortage after Erdenet stopped deliveries.	71	70	71	71	71	71
Mednogorsk Smelter (Urals)	Urals Mining & Metallurgical Co. (UGMK)	Blast Furnace	Concs., Scrap	Operating		40	40	40	40	40	40
Moscow	Moscow Smelting & Refining	Reverberatory (S)	Scrap	Operating		30	30	30	30	30	30
Nadezhdinsky	Norilsk G-M	Outokumpu Flash	Ni/Cu Concs.	Operating	Includes Cu in Ni concentrates.	100	100	100	100	100	100
Norilsk Smelter	Norilsk G-M	Reverb and Electric	Ni/Cu Concs.	Operating	Includes Cu in Ni concentrates.	400	400	400	400	400	400
Pechenganikel	Pechenganikel	Electric	Cu/Ni Concs.	Operating	Cu in Cu/Ni matte.	40	40	40	40	40	40
Severonikel (Kola Peninsula)	Severonikel	Electric	Cu/Ni Concs., Scrap	Operating	Copper scrap smelting unit with a capacity of 40,000 tpy installed.	60	60	60	60	60	60
Sredneuralsky Smelter (SUMZ)	Urals Mining and Metallurgical Plant (UGMK)	Reverb./ Blast/ Vanyukov	Concs., Scrap	Operating	A new reverberatory furnace was commissioned in 1999.	105	110	110	110	110	110
Operating + Developing						1,036	1,040	1,051	1,061	1,081	1,081
Total Russia						1,036	1,040	1,051	1,061	1,081	1,081
<b>Slovakia</b>											
Krompachy	Kovohute Krompachy	Reverberatory (S)	Scrap	Operating	Was closed 1999 and restarted 2001.		20	20	20	20	20
Operating + Developing						0	20	20	20	20	20
Total Slovakia						0	20	20	20	20	20



<i>Smelters</i>	<i>Owner(s)</i>	<i>Process</i>	<i>Raw Materials</i>	<i>Current Status</i>	<i>Short Remarks</i>	<i>2000</i>	<i>2001</i>	<i>2002</i>	<i>2003</i>	<i>2004</i>	<i>2005</i>
<b>South Africa</b>											
Impala Platinum Smelter	Impala Platinum Ltd.	Electric	Cu/Ni/Pt Concs.	Operating		7	7	7	7	7	7
NababEEP Smelter (O'okiep)	Metorex (81.5%)	Reverberatory	Concs.	Operating		32	32	32	32	32	32
Phalaborwa Smelter	Palabora Mining Co. Ltd.	Reverberatory	Concs.	Operating	Contop added in 1988.	135	135	135	135	135	135
Rustenburg Smelter	Rustenburg Platinum Mines Ltd.	Electric	Pt/Au, Ni/Cu Concs.	Operating	Capacity is Cu content of matte.	7	7	7	7	7	7
Western Platinum Smelter	Western Platinum Ltd.	Electric	Cu/Ni/Pt Concs.	Operating	Cu/Ni matte exported.	2	2	2	2	2	2
Operating + Developing						183	183	183	183	183	183
Total South Africa						183	183	183	183	183	183
<b>Spain</b>											
Berango	ELMET	Rotary Furnace (S)	Scrap	Operating	Black copper produced.	32	32	32	32	32	32
Huelva	Atlantic Copper S.A. (Freeport McMoran)	Outokumpu Flash	Concs.	Operating		320	320	320	320	320	320
Operating + Developing						352	352	352	352	352	352
Total Spain						352	352	352	352	352	352
<b>Sweden</b>											
Ronnskar	Boliden Metall A.B.	Electric (TBRC)	Concs., Scrap	Operating		140	240	240	240	240	240
Operating + Developing						140	240	240	240	240	240
Total Sweden						140	240	240	240	240	240
<b>Thailand</b>											
Rayong Copper	Thai Copper Industries Co. (TCI)	Teniente Converter	Concs.	Planned	Development stopped.						
Planned						0	0	0	0	0	0
Total Thailand						0	0	0	0	0	0

<i>Smelters</i>	<i>Owner(s)</i>	<i>Process</i>	<i>Raw Materials</i>	<i>Current Status</i>	<i>Short Remarks</i>	<i>2000</i>	<i>2001</i>	<i>2002</i>	<i>2003</i>	<i>2004</i>	<i>2005</i>
<b>Turkey</b>											
Samsun Smelter/ Kurec	Karadeniz Bakir Isletmelerei (KBI)	Outokumpu Flash	Concs.	Operating	Capacity increased in 1999 by using a second converter.	42	42	42	42	42	42
					Operating + Developing	42	42	42	42	42	42
					Total Turkey	42	42	42	42	42	42
<b>United States</b>											
Alton	Chemetco Metal Co.	Reverberatory (S)	Blister, Scrap	Closed (2001)	Sells anode to other refineries.	135	135				
Carrollton	Southwire Co.	Reverberatory (S)	Scrap, Blister	Closed (2000)		140					
Garfield	Kennecott (Rio Tinto)	Kennecott/ Outokumpu	Concs.	Operating		320	320	320	320	320	320
Hayden	Grupo Mexico	Inco Flash	Concs.	Operating		210	210	210	210	210	210
Hurley	Phelps Dodge	Inco Flash	Concs.	Operating	Started in 1983.	190	190	190	190	190	190
Miami	Phelps Dodge	Isasmelt/ Electric	Concs.	Operating	Temporarily closed (2002).	180	180	180	180	180	180
					Operating + Developing	1,175	1,035	900	900	900	900
					Total United States	1,175	1,035	900	900	900	900
<b>Uzbekistan</b>											
Almalyk Smelter	Almalyk Mining and Metallurgical Combine	Reverberatory/ Oxy flame	Cu/Zn Concs.	Operating	Modernized in 1969.	140	140	140	140	140	140
					Operating + Developing	140	140	140	140	140	140
					Total Uzbekistan	140	140	140	140	140	140
<b>Yugoslavia</b>											
Bor	Rudarsko-Topioninarski Basen Bor (RTB Bor)	Reverberatory	Concs. from Serbia	Operating		170	170	170	170	170	170
					Operating + Developing	170	170	170	170	170	170
					Total Yugoslavia	170	170	170	170	170	170

<i>Smelters</i>	<i>Owner(s)</i>	<i>Process</i>	<i>Raw Materials</i>	<i>Current Status</i>	<i>Short Remarks</i>	<i>2000</i>	<i>2001</i>	<i>2002</i>	<i>2003</i>	<i>2004</i>	<i>2005</i>
<b>Zambia</b>											
Chambishi Cobalt Plant (RLE)	Avmin (SA)	Electrowinning (RLE)	Leach slags	Operating	Leaches slag of Nkana dump.	15	15	15	15	15	15
Mufulira	Mopani Copper Mines plc. (90%) (First Quantum 49%, Glencore 51%), Zambia Consolidated Copper Mines Ltd. - ZCCM (10%)	Electric	Concs.	Operating		180	180	180	180	180	180
Nchanga TLP	Anglo American (80%), Zambia Consolidated Copper Mines Ltd. - ZCCM	Electrowinning (LG)	Tailings leach	Operating		70	70	70	70	70	70
Nkana (Rhogana)	Zambia Consolidated Copper Mines Ltd. - ZCCM	Reverberatory/ Teniente Conv.	Concs.	Operating	Anglo American has option to buy the smelter.	200	200	200	200	200	200
Nkana Cobalt Plant (RLE)	Zambia Consolidated Copper Mines Ltd. - ZCCM	Electrowinning (RLE)	Concs.	Operating	Low Grade SX-EW. Using Nchanga and Nampundwe concs.	14	14	14	14	14	14
Operating + Developing						479	479	479	479	479	479
Total Zambia						479	479	479	479	479	479
<b>Zimbabwe</b>											
Bindura	Bindura Nickel Corp. Ltd.	Ausmelt	Cu/Ni Concs.	Operating		3	3	2	2	2	2
Eiffel Flats Smelter	Rio Tinto Mining (Zimbabwe)	Blast Furnace	Cu/Ni Concs., Matte	Operating		6	6	6	6	6	6
Inyati Smelter	Corsyn Consolidated Mines Ltd.	Blast Furnace	Concs.	Operating		5	5	5	5	5	5
Lomagundi (Alaska) Smelter	Mhangura Copper Mines (ZMDC)	Reverberatory	Concs.	Operating	Operates far below capacity due to a lack of concs feed.	25	25	25	25	25	25
Operating + Developing						39	39	38	38	38	38
Total Zimbabwe						39	39	38	38	38	38
<i>World Total Operating + Developing</i>						14,235	14,614	14,882	15,338	15,518	15,788
<i>World Total Planned</i>						0	0	0	0	0	0
<i>World Total</i>						14,235	14,614	14,882	15,338	15,518	15,788

Table 7. WORLD COPPER REFINERIES CAPACITIES 2000 to 2005

<i>Refineries</i>	<i>Owner(s)</i>	<i>Process</i>	<i>Raw Materials</i>	<i>Current Status</i>	<i>Short Remarks</i>	<i>2000</i>	<i>2001</i>	<i>2002</i>	<i>2003</i>	<i>2004</i>	<i>2005</i>
<b>Argentina</b>											
San Jorge	Northern Orion	Electrowinning		Planned							
						Planned		0	0	0	0
						Total	Argentina	0	0	0	0
<b>Australia</b>											
Girilambone	Straits Engineering (60%), Nord Pacific Ltd. (40%)	Electrowinning	Leach	Operating		18	6	3			
Mount Cuthbert	Matrix Metals	Electrowinning		Operating		6	6	6	6	6	6
Mt. Gordon (Gunpowder)	Western Metals	Electrowinning	Leach	Operating		35	50	50	50	50	50
Nifty SX-EW	Straits Resources	Electrowinning	Copper-bearing fluids	Operating		17	25	25	25	25	25
Olympic Dam	Western Mining Corp.	Electrolytic	Anode	Operating		200	220	230	240	240	250
Olympic Dam	Western Mining Corp.	Electrowinning	Leach	Operating		8	8	8	8	8	8
Port Kembla	Furukawa (52.5%), Nittetsu Mining (20%), Nissho Iwai (17.5%), Itochu (10%)	Electrolytic	Primary & Secondary anode	Operating		60	120	120	120	120	120
Port Pirie	Pasminco	Electrowinning	Leach	Operating		4	4	4	4	4	4
Townsville	Copper Refineries Pty. Ltd. (MIM)	Electrolytic	Primary & Secondary anode	Operating		270	270	270	270	270	270
						Operating + Developing		618	709	716	723
						Planned		0	0	0	0
Whim Creek/Radio Hill	Straits Resources	Electrowinning		Planned							
						Total	Australia	618	709	716	723

Refineries	Owner(s)	Process	Raw Materials	Current Status	Short Remarks	2000	2001	2002	2003	2004	2005
<b>Austria</b>											
Brixlegg	Montanwerke Brixlegg	Electrolytic (S)	Imported Blister & Scrap	Operating		80	80	80	80	80	80
					Operating + Developing	80	80	80	80	80	80
					Total Austria	80	80	80	80	80	80
<b>Belgium</b>											
Hoboken	Umicore	Electrowinning		Planned	Will treat secondary material from Hoboken smelter.					40	40
					Planned	0	0	0	0	40	40
Beerse	La Metallo Chimique S.A.	Electrolytic (S)	Anode	Operating		40	40	40	40	40	40
Liege	UCA (Lamitref)	Fire Refining (S)	Scrap	Operating	50,000 tpy scrap, 30,000 tpy other materials.	80	80	80	80	80	80
Olen	Umicore	Electrolytic	Anode, Scrap	Operating	Addition of new capacity (150,000 tpy) in 1998. Shut down of old tankhouse.	330	330	330	330	330	330
					Operating + Developing	450	450	450	450	450	450
					Total Belgium	450	450	450	450	490	490
<b>Brazil</b>											
Camacari	Caraiba Metais S.A. (Paranapanema S.A.)	Electrolytic	Anode	Operating		202	220	220	220	220	380
					Operating + Developing	202	220	220	220	220	380
					Total Brazil	202	220	220	220	220	380
<b>Bulgaria</b>											
UM Pirdop	Umicore (97.5%)	Electrolytic	Anode	Operating	New refinery with 130,000 tpy to be built by Union Miniere.	45	45	45	130	130	130
					Operating + Developing	45	45	45	130	130	130
					Total Bulgaria	45	45	45	130	130	130

<i>Refineries</i>	<i>Owner(s)</i>	<i>Process</i>	<i>Raw Materials</i>	<i>Current Status</i>	<i>Short Remarks</i>	<i>2000</i>	<i>2001</i>	<i>2002</i>	<i>2003</i>	<i>2004</i>	<i>2005</i>
<b>Canada</b>											
CCR Refinery (Montreal)	Noranda Inc.	Electrolytic	Anode	Operating		342	360	360	360	360	360
Sudbury (Copper Cliff)	Inco Ltd.	Electrolytic	Anode, Scrap	Operating		140	140	140	140	140	140
Sudbury EW (Copper Cliff)	Inco Ltd.	Electrowinning	Matte	Operating		9	9	9	9	9	9
Timmins (Ontario)	Falconbridge Limited	Electrolytic	Anode	Operating	Incremental expansion underway.	125	147	147	147	147	147
— — — — —											
Operating + Developing						616	656	656	656	656	656
— — — — —											
Total Canada						616	656	656	656	656	656

<i>Refineries</i>	<i>Owner(s)</i>	<i>Process</i>	<i>Raw Materials</i>	<i>Current Status</i>	<i>Short Remarks</i>	<i>2000</i>	<i>2001</i>	<i>2002</i>	<i>2003</i>	<i>2004</i>	<i>2005</i>
<b>Chile</b>											
Andacollo	Aur Resources (70%), CMP (20%), Enami (10%)	Electrowinning	Leach	Operating		22	22	22	22	22	22
Cerro Colorado	Rio Algom Ltd.	Electrowinning	Leach	Operating		125	125	125	125	125	125
Chuquicamata	Codelco	Electrowinning	Leach	Operating		141	141	130	96	85	85
Chuquicamata Refinery	Codelco	Electrolytic	Anode	Operating		690	690	690	710	720	720
Collahuasi	Minorco (44%), Falconbridge (44%), Mitsui + Nippon (12%)	Electrowinning	Leach	Operating		58	59	58	58	58	58
El Abra	Codelco (49%), Phelps Dodge (51%)	Electrowinning	Leach	Operating		200	221	240	250	250	250
El Soldado	Cia. Minera Disputada de Las Condes S.A.	Electrowinning	Leach	Operating		8	8	8	8	8	8
El Teniente	Codelco Chile	Electrowinning	Leach	Operating		4	4	4	8	8	8
El Teniente/ Fire Refinery	Codelco Chile	Fire Refining	Anode, EW cathode	Operating		165	170	170	170	170	200
El Tesoro/Leonor	Antofagasta Holdings (61%), AMP (39%)	Electrowinning	Leach	Operating			45	85	75	75	75
Escondida	Broken Hill (57.5%), Rio Tinto Corp. (30%), Japan Escondida (10%)	Electrowinning	Leach	Operating		140	145	150	150	150	150
Ivan/Zar	Milpo	Electrowinning	Leach	Operating	Start up in late 1994.	13	13	13	13	13	13
Las Ventanas	Empresa Nacional de Minera (ENAMI)	Electrolytic	Anode	Operating	Includes the treatment of third party anodes.	320	320	320	320	320	320
Lo Aguirre	Sociedad Minera Pudahuel Ltda y Cia.	Electrowinning	Crushed copper oxide ore	Closed (2000)		3					
Lomas Bayas	Falconbridge, Noranda	Electrowinning	Leach	Operating		55	60	60	60	60	60
Los Bronces	Cia. Minera Disputada de Las Condes S.A.	Electrowinning		Operating		12	12	27	27	27	27
Mansa Mina	Codelco, Billiton	Electrowinning	Leach	Developing	Will use bioleach technology.				20	20	20
Manto Verde	Empresa Minera de Mantos Blancos S.A.	Electrowinning	Leach	Operating	Start up in late 1995.	60	60	60	60	60	60
Mantos Blancos	Anglo American Corp.	Electrowinning	Leach	Operating		60	60	60	60	60	60

<i>Refineries</i>	<i>Owner(s)</i>	<i>Process</i>	<i>Raw Materials</i>	<i>Current Status</i>	<i>Short Remarks</i>	<i>2000</i>	<i>2001</i>	<i>2002</i>	<i>2003</i>	<i>2004</i>	<i>2005</i>
Michilla	Antofagasta Holdings	Electrowinning	Copper ore/leach	Operating	Lince Mine and Michilla operations.	51	51	51	51	51	51
Quebrada Blanca	Aur Resources (76.5%), Soc. Minera Pudahuel (13.5%), ENAMI (10%)	Electrowinning	Leach	Operating	Bacterial and heap leaching used.	75	75	75	75	75	75
Radomiro Tomic	Codelco Chile	Electrowinning	Leach	Operating		190	250	280	280	280	280
Salvador	Codelco Chile	Electrowinning	Leach	Operating	Production started in 1994.	25	25	25	25	25	25
Salvador (Potrerillos)	Codelco Chile	Electrolytic	Anode	Operating		135	140	140	140	180	180
San Jose (Socavon)	Soc. Punta del Cobre (Pucobre)	Electrowinning	Leach	Operating		7	8	8	8	8	8
Zaldivar	Placer Dome Inc .	Electrowinning	Leach	Operating	Start up in 1995.	150	130	132	132	132	132
					Operating + Developing	2,709	2,834	2,933	2,943	2,982	3,012
Gaby Sur	Codelco	Electrowinning	Leach	Planned						50	90
Mejillones	Outokumpu	Electrolytic	Anode	Planned	Chilean power producer Endesa pulled out of the project.					50	90
					Planned	0	0	0	0	50	90
					Total Chile	2,709	2,834	2,933	2,943	3,032	3,102



<i>Refineries</i>	<i>Owner(s)</i>	<i>Process</i>	<i>Raw Materials</i>	<i>Current Status</i>	<i>Short Remarks</i>	<i>2000</i>	<i>2001</i>	<i>2002</i>	<i>2003</i>	<i>2004</i>	<i>2005</i>
<b>China</b>											
Baiyin	Baiyin Nonferrous Metals	Electrolytic	Anode	Operating		60	60	60	60	60	60
Changzhou Copper	Local Government	Electrolytic	Blister	Operating		40	40	40	40	40	40
Chengdu Electrometallurgical Plant	Sichuan Copper Nickel Co.	Electrolytic	Matte	Operating		3	3	3	3	3	3
Chizhou	Local Government	Electrolytic	Anode	Operating		10	10	10	10	10	10
Chongqing	Nanfeng Medecine	Fire Refining (S)	Scrap, Blister	Operating		20	20	20	20	20	20
Dachang	Private	Electrolytic	Scrap, Blister	Operating		65	65	65	65	65	65
Dadong	Dongchun Bureau of Mines	Electrolytic		Operating		10	10	10	10	10	10
Datong	Tianjin Copper Plant	Electrolytic	Scrap, Blister	Operating		30	30	30	30	50	50
Daye/ Hubei		Electrolytic	Blister	Operating		85	85	110	150	150	200
Fuchunjiang	Local Government	Electrolytic	Anode, Scrap	Operating		10	20	20	20	20	20
Guangzhou Zhujiang	Local Government	Electrolytic	Scrap	Operating	Anode furnace of 35,000 tpy.	8	8	8	8	8	8
Guixi	Jiangxi Copper Corporation	Electrolytic	Anode, Scrap	Operating	Produces LME registered grade.	200	250	250	300	400	400
Huludao	Huludao Zinc Corp.	Electrolytic	Anode	Operating		80	80	80	80	80	80
Jinchang (Tongling II)	Tongling Nonferrous Metals Corp. (52%), Sharpline International (13%)	Electrolytic	Anode	Operating		50	50	50	80	100	100
Jinchuan	Local Government	Electrolytic	Anode	Operating		35	50	50	60	120	120
Jinlong	Tongling NonFerrous Metal Corp. (52 %), Sharpline International (13%)	Electrolytic	Anode	Operating		100	130	130	150	150	200
Jintian	Ningbo Jintian Copper Corp.	Electrolytic	Scrap	Operating		15	15	15	15	15	15
Luoyang/ Henan	Luoyang Copper Fabricating Plant (Local Government)	Electrolytic	Anode	Operating		50	50	50	50	50	50
Meizhou Jinyan	Local Government	Fire Refining/ Electric	Blister, Scrap	Operating		20	20	20	20	20	20
Shanghai	Jiangxi Copper, Local Government	Electrolytic	Anode	Operating	Local Government will take full control.	80	50	50	50	50	50

<i>Refineries</i>	<i>Owner(s)</i>	<i>Process</i>	<i>Raw Materials</i>	<i>Current Status</i>	<i>Short Remarks</i>	<i>2000</i>	<i>2001</i>	<i>2002</i>	<i>2003</i>	<i>2004</i>	<i>2005</i>
Shenyang	Shenyang Xingye Trading & Technology Corp.	Electrolytic	Anode	Closed (2000)		60					
Shunqi	Yuyao Shunqi Co.	Electrolytic	Anode	Operating	Might close.	10	10	10	10	10	10
SX-EW plants		Electrowinning	Leach	Operating		35	35	45	45	50	50
Taicang	Taicang Copper Group	Fire Refining	Anode, Scrap	Operating		20	20	20	20	20	20
Taiyuan	Taiyuan Copper Corp.	Electrolytic	Anode	Operating		30	30	30	30	30	30
Wuhu	Local Government	Electrolytic	Blister, Scrap	Operating		45	45	45	45	45	45
Wujin	Local Township	Fire Refining	Scrap	Operating		10	10	10	10	10	10
Xinxing	Shenyang Construction Inv Co., Shenyang Smelter	Electrolytic	Anode	Operating	Low production for lack of blister/ anode feed.	100	100	100	100	100	100
Yantai	Jinpeng Nonferrous Metals	Electrolytic	Anode	Operating		30	30	35	35	35	35
Yubei Copper Fabricating	Local Government	Electrolytic	Anode	Operating		10	10	10	10	10	10
Yunnan	Yunnan Copper Industry Group (Local Government)	Electrolytic	Anode	Operating		150	150	200	200	200	250
Zhangjiagang	Tongling Non Ferrous Co.	Electrolytic	Scrap	Operating	Blister from Jinchang smelter.	40	40	60	80	80	80
Zhongtiaoshan (Yanqu)	Zhong Tiaoshan Nonferrous Metals Corp.	Electrolytic	Anode	Operating	Associated with smelter.	15	15	15	15	15	15
Zhuzhou	Zhuzhou Smelter Co.	Electrolytic	Blister	Operating		15	15	15			
Operating + Developing						1,541	1,556	1,666	1,821	2,026	2,176
Zhongtiaoshan (Houma)	Zhongtiaoshan Nonferrous Metals Company	Electrolytic	Anode	Planned	Expansion dependant on new smelter.			35	35	35	35
Planned						0	0	35	35	35	35
Total China						1,541	1,556	1,701	1,856	2,061	2,211

<i>Refineries</i>	<i>Owner(s)</i>	<i>Process</i>	<i>Raw Materials</i>	<i>Current Status</i>	<i>Short Remarks</i>	<i>2000</i>	<i>2001</i>	<i>2002</i>	<i>2003</i>	<i>2004</i>	<i>2005</i>
<b>Congo</b>											
Shituru Refinery	La Générale des Carrières et des Mines - Gecamines	Fire Refining	Electrowon & black copper	Operating		80	100	100	100	100	100
					Operating + Developing	80	100	100	100	100	100
Kakanda Project	International Panorama Resource Corp. (51%), Gecamines (49%)	Electrowinning		Planned		0	0	0	0	0	0
					Planned	0	0	0	0	0	0
					Total Congo	80	100	100	100	100	100
<b>Cuba</b>											
Mantua	Geominera, Northern Orion	Electrowinning		Planned							18
					Planned	0	0	0	0	0	18
					Total Cuba	0	0	0	0	0	18
<b>Cyprus</b>											
Tamasos (Skouriotissa)	Oxiana Resources NL, Hellenic Metallurgy Co. Ltd.	Electrowinning	Leach	Operating		10	10	12	12	12	12
					Operating + Developing	10	10	12	12	12	12
					Total Cyprus	10	10	12	12	12	12
<b>Egypt</b>											
General Metals/ Cairo	General Metals Co.	Fire Refining (S)	Scrap	Operating		4	4	4	4	4	4
					Operating + Developing	4	4	4	4	4	4
					Total Egypt	4	4	4	4	4	4

<i>Refineries</i>	<i>Owner(s)</i>	<i>Process</i>	<i>Raw Materials</i>	<i>Current Status</i>	<i>Short Remarks</i>	<i>2000</i>	<i>2001</i>	<i>2002</i>	<i>2003</i>	<i>2004</i>	<i>2005</i>
<b>Finland</b>											
Kokkola	OMG Kokkola Chemicals Oy	Electrowinning	Leach	Developing				15	15	15	15
Pori	Outokumpu Harjavalta Metals Oy	Electrolytic	Anode	Operating		125	125	125	125	125	125
Operating + Developing						125	125	140	140	140	140
Total Finland						125	125	140	140	140	140
<b>Germany</b>											
Hettstedt	Mansfeld Kupfer und Messing GmbH (MKM)	Electrolytic (S)	Anode	Operating	Lamitref Industries (100%)	63	63	63	63	63	63
Huettenwerke Kayser	Norddeutsche Affinerie (98%)	Electrolytic (S)	Anode	Operating	Mount Isa Process.	180	180	180	180	180	180
Norddeutsche Affinerie	Norddeutsche Affinerie AG	Electrolytic	Anode	Operating		370	385	385	385	385	385
Osnabruck	KM Europa Metal AG (KME)	Fire Refining (S)	Scrap	Operating	Mostly scrap, billet and cake.	95	95	95	95	95	95
Operating + Developing						708	723	723	723	723	723
Total Germany						708	723	723	723	723	723
<b>India</b>											
Birla	Indo Gulf Fertilisers	Electrolytic	Concs.	Operating	Has long term frame contracts for 85% of its concentrates.	100	120	150	150	150	150
Ghatsila	Hindustan Copper Ltd. (HCL)	Electrolytic	Anode	Operating		17	17	17	17	17	17
Jhagadia (Gujarat)	SWIL Ltd.	Electrolytic (S)	Scrap	Developing	Will use Mount Isa process.			50	50	50	50
Khetri Refinery	Hindustan Copper Ltd. (HCL)	Electrolytic	Anode	Operating		31	31	31	31	31	31
Sterlite Refinery	Sterlite Industries	Electrolytic	Anode	Operating	Uses MIM technology. Refinery finished late 1995.	100	120	150	150	150	150
Operating + Developing						248	288	398	398	398	398
Total India						248	288	398	398	398	398

<i>Refineries</i>	<i>Owner(s)</i>	<i>Process</i>	<i>Raw Materials</i>	<i>Current Status</i>	<i>Short Remarks</i>	<i>2000</i>	<i>2001</i>	<i>2002</i>	<i>2003</i>	<i>2004</i>	<i>2005</i>
<b>Indonesia</b>											
Gresik	Mitsubishi (75%), Freeport (25%)	Electrolytic	Anode	Operating		180	200	200	200	200	200
					Operating + Developing	180	200	200	200	200	200
					Total Indonesia	180	200	200	200	200	200
<b>Iran</b>											
Sar Cheshmeh	National Iranian Copper Co.	Electrowinning	Leach	Operating	Plant was built in 1995.	15	15	15	15	15	15
Sar Cheshmeh Copper Complex	National Iranian Copper Industries	Electrolytic	Anode	Operating		150	150	150	150	150	150
					Operating + Developing	165	165	165	165	165	165
					Total Iran	165	165	165	165	165	165
<b>Italy</b>											
Fornaci di Barga Lucca	Europa Metalli SpA	Fire Refining (S)	Secondary anode	Operating		24	24	24	24	24	24
Pieve Vergonte (Novara)	Sitindustrie SpA	Fire Refining (S)	Secondary anode	Operating		30	30	30	30	30	30
Porto Marghera (Venezia)	SIMAR SpA	Electrolytic (S)	Secondary anode	Closed (2000)	Capacity utilization very low due to scrap shortage.	65					
					Operating + Developing	119	54	54	54	54	54
					Total Italy	119	54	54	54	54	54

<i>Refineries</i>	<i>Owner(s)</i>	<i>Process</i>	<i>Raw Materials</i>	<i>Current Status</i>	<i>Short Remarks</i>	<i>2000</i>	<i>2001</i>	<i>2002</i>	<i>2003</i>	<i>2004</i>	<i>2005</i>
<b>Japan</b>											
Hitachi/ Ibaragi	Nippon Mining & Metals Co. Ltd.	Electrolytic	Anode	Operating		170	180	180	180	180	180
Kosaka/ Akita	Dowa Mining Co. Ltd.	Electrolytic	Anode	Operating	Expansion planned to match smelter.	72	72	72	72	72	72
Naoshima/ Kagawa	Mitsubishi Materials Corp.	Electrolytic	Anode	Operating		216	225	225	225	225	225
Onahama Fukushima	Mitsubishi Metal Corp. (49.32%), Dowa Mining Co. (29.75%), Furukawa Co. (7.75%)	Electrolytic	Anode	Operating		258	258	258	258	258	258
Saganoseki/ Ooita	Nippon Mining & Metals Co. Ltd.	Electrolytic	Anode	Operating		250	270	270	270	270	270
Takehara/ Hiroshima	Mitsui Mining & Smelting Co. Ltd.	Electrolytic	Anode	Closed (2000)		30					
Tamano/ Okayama	Hibi Kyodo Smelting Co. Ltd.	Electrolytic	Anode	Operating		191	218	218	218	218	218
Toyo/Niihama (Besshi)	Sumitomo Metal Mining Co. Ltd.	Electrolytic	Anode	Operating		250	250	250	250	250	250
Operating + Developing						1,437	1,473	1,473	1,473	1,473	1,473
Total Japan						1,437	1,473	1,473	1,473	1,473	1,473
<b>Kazakhstan</b>											
Balkash Refinery	Samsung	Electrolytic	Anode	Operating		165	175	175	185	185	185
Dzhezkazgan Refinery	Samsung	Electrolytic	Anode	Operating	Productivity raised by Samsung investment.	250	250	250	250	250	250
Operating + Developing						415	425	425	435	435	435
Total Kazakhstan						415	425	425	435	435	435
<b>Korea Republic</b>											
Changhang Refinery	LG-Nikko Co. (LG, Nippon Mining)	Electrolytic	Anode, Scrap	Operating		60	60	60	60	60	60
Onsan Refinery I	LG-Nikko Co. (LG, Nippon Mining)	Electrolytic	Anode, Scrap	Operating	Expansion after 2000 possible.	220	220	220	220	220	220
Onsan Refinery II	LG-Nikko Co. (LG, Nippon Mining)	Electrolytic	Anode, Scrap	Operating		185	190	190	230	230	230
Operating + Developing						465	470	470	510	510	510
Total Korea Republic						465	470	470	510	510	510

Refineries	Owner(s)	Process	Raw Materials	Current Status	Short Remarks	2000	2001	2002	2003	2004	2005
<b>Mexico</b>											
Cananea	Grupo Mexico	Electrowinning	Leach	Operating		35	77	77	77	77	77
La Caridad	Mexicana de Cobre S. A.	Electrolytic	Anode, Scrap	Operating		330	330	330	330	330	330
La Caridad	Mexicana de Cobre S. A.	Electrowinning	Leach	Operating		25	25	25	25	25	25
Refineria Mexico/ D F	Cobre de Mexico S.A.	Electrolytic	Anode	Operating	Expansion in 1991. New plant at Celaya.	150	150	150	150	150	150
Refinery Celaya	Cobre de Mexico S.A.	Electrolytic (S)	Scrap	Operating		30	30	30	30	30	30
Operating + Developing						570	612	612	612	612	612
Luz del Cobre (San Antonio)	Golden News Resources	Electrowinning		Planned							
Piedras Verdes	Phelps Dodge Corp. (70%), AZCO Mining (30%)	Electrowinning		Planned							
Santo Tomas	Exall Resources	Electrowinning		Planned							
Planned						0	0	0	0	0	0
Operating + Developing						570	612	612	612	612	612
Total Mexico						570	612	612	612	612	612
<b>Mongolia</b>											
Erdenet	Erdenet Mining & Concentrating	Electrowinning	Leach	Operating	From stockpiled ore. Started Fall 1996.	4	5	5	22	22	22
Operating + Developing						4	5	5	22	22	22
Total Mongolia						4	5	5	22	22	22
<b>Myanmar</b>											
Letpadaung	Ivanhoe Myanmar Holdings (50%), Mining Enterprise No.1	Electrowinning		Planned						125	125
Planned						0	0	0	0	125	125
Monywa	Ivanhoe Myanmar (50%), Mining Enterprise No.1	Electrowinning	Leach	Operating		28	30	30	30	30	30
Operating + Developing						28	30	30	30	30	30
Total Myanmar						28	30	30	30	155	155

<i>Refineries</i>	<i>Owner(s)</i>	<i>Process</i>	<i>Raw Materials</i>	<i>Current Status</i>	<i>Short Remarks</i>	<i>2000</i>	<i>2001</i>	<i>2002</i>	<i>2003</i>	<i>2004</i>	<i>2005</i>
<b>Namibia</b>											
Haib Mine	Haib Copper Mining and Exploration Co.	Electrowinning	Leach	Planned	Production to last 25 years.						
					Planned	0	0	0	0	0	0
					Total Namibia	0	0	0	0	0	0
<b>North Korea</b>											
Nampo Refinery	North Korean Government	Electrolytic	Blister, Anode & Scrap	Operating	Built by Nippon Mining in 1914.	40	40	40	40	40	40
Tanchon (Hungnam)	North Korean Government	Electrolytic	Anode	Operating		25	25	25	25	25	25
					Operating + Developing	65	65	65	65	65	65
					Total North Korea	65	65	65	65	65	65
<b>Norway</b>											
Kristiansand	Falconbridge Nikkelverk A.S.	Electrowinning	Cu/Ni matte	Operating	Processes imported Cu/Ni matte. Expansion to 60,000 tpy possible.	40	40	40	40	40	40
					Operating + Developing	40	40	40	40	40	40
					Total Norway	40	40	40	40	40	40
<b>Oman</b>											
Sohar Copper Refinery	Oman Mining Co.	Electrolytic	Anode	Operating		33	33	33	33	33	33
					Operating + Developing	33	33	33	33	33	33
					Total Oman	33	33	33	33	33	33



Refineries	Owner(s)	Process	Raw Materials	Current Status	Short Remarks	2000	2001	2002	2003	2004	2005
<b>Peru</b>											
Cerro Verde I Leach Pad	Phelps Dodge (82.4%)	Electrowinning	Leach	Operating		65	75	84	84	84	84
Cuajone	Grupo Mexico (54.1%), Marmon Corp. (15%), Phelps Dodge (13.9%)	Electrowinning	Leach	Operating	Leachate processed at Toquepala.	5	5	5	5	5	5
Ilo Copper Refinery	SPCC (Grupo Mexico)	Electrolytic	Anode	Operating		240	240	240	240	240	240
La Oroya Refinery	Doe Run	Electrolytic	Anode	Operating		80	80	80	80	80	80
Tintaya/Chabucas	BHP Copper Co.	Electrowinning	Leach	Developing				17	34	34	40
Toquepala	Southern Peru Copper Corp.	Electrowinning	Leach	Operating	Includes Cuajone leachate.	62	62	62	51	51	51
Operating + Developing						452	462	488	494	494	500
Cerro Negro	Phelps Dodge	Electrowinning		Planned			20	20	20	20	20
La Granja	BHP Billiton	Electrowinning	Leach	Planned	Project on hold. Planned capacity 40,000 tpy.						
Planned						0	20	20	20	20	20
Total Peru						452	482	508	514	514	520
<b>Philippines</b>											
Isabel/ Leyte (PASAR)	Glencore International, Local Group	Electrolytic	Anode	Operating	Expansion on hold until after privatization.	175	175	175	175	175	175
Operating + Developing						175	175	175	175	175	175
Total Philippines						175	175	175	175	175	175
<b>Poland</b>											
Glogow I	KGHM	Electrolytic	Anode	Operating		190	195	195	195	195	195
Glogow II	KGHM	Electrolytic	Anode	Operating		195	195	195	195	195	195
Legnica	KGHM Polska Miedz, S.A. (KGHM)	Electrolytic	Anode (Legnica)	Operating		85	85	85	85	85	85
Operating + Developing						470	475	475	475	475	475
Total Poland						470	475	475	475	475	475

<i>Refineries</i>	<i>Owner(s)</i>	<i>Process</i>	<i>Raw Materials</i>	<i>Current Status</i>	<i>Short Remarks</i>	<i>2000</i>	<i>2001</i>	<i>2002</i>	<i>2003</i>	<i>2004</i>	<i>2005</i>
<b>Romania</b>											
Baia Mare	Allied Deals	Electrolytic	Primary & Secondary anode	Operating		45	45	45	45	45	45
Zlatna	Zlatna Metallurgical Enterprise for Nonferrous Metals	Electrolytic	Primary & Secondary anode	Operating		40	40	40	40	40	40
Operating + Developing						85	85	85	85	85	85
Total Romania						85	85	85	85	85	85
<b>Russia</b>											
Kyshtym	Uralelectrocopper	Electrolytic	Anode	Operating		80	80	80	80	80	80
Monchegorsk	Severonickel	Electrolytic	Cu/Ni Matte, Scrap	Operating	Produces 20,000 tpy from scrap.	100	100	100	100	100	100
Moscow Refinery	Moscow Smelting & Refining	Electrolytic (S)	Anode	Operating	Processes only scrap.	30	30	30	30	30	30
Norilsk Refinery	Norilsk Copper	Electrolytic	Cu/Ni Matte	Operating		330	330	330	330	330	330
Pyshma Refinery	Uralelectromed (Urals Mining & Metallurgical Co.)	Electrolytic	Anode	Operating		310	310	310	310	310	310
Yuzhuralnikel	Yuzhuralnikel	Electrolytic	Scrap	Operating	Converted nickel refinery based on scrap.		7	18	18	18	18
Operating + Developing						850	857	868	868	868	868
Total Russia						850	857	868	868	868	868
<b>Slovakia</b>											
Krompachy	Kovohute Krompachy	Electrolytic	Anode, Scrap	Operating	Was closed 1999. Restarted production early 2001.		20	20	20	20	20
Operating + Developing						0	20	20	20	20	20
Total Slovakia						0	20	20	20	20	20

<i>Refineries</i>	<i>Owner(s)</i>	<i>Process</i>	<i>Raw Materials</i>	<i>Current Status</i>	<i>Short Remarks</i>	<i>2000</i>	<i>2001</i>	<i>2002</i>	<i>2003</i>	<i>2004</i>	<i>2005</i>
<b>South Africa</b>											
Impala Platinum	Impala Platinum Ltd.	Electrowinning	Matte	Operating		7	7	7	7	7	7
Marikana/ Transvaal	Western Platinum	Electrowinning	Pt ores	Operating		2	2	2	2	2	2
Metal Sales/ Benoni	Metal Sales Co. Pty	Fire Refining (S)	Scrap	Operating		7	7	7	7	7	7
O Okiep	Metorex (Crew Development Corp.) 89%	Electrowinning		Developing				10	10	10	10
Palaborwa Refinery	Rio Tinto	Electrolytic	Anode	Operating		140	140	140	140	140	140
Rustenburg	Rustenburg Platinum Mines Ltd.	Electrowinning	Matte	Operating		7	7	7	7	7	7
Operating + Developing						163	163	173	173	173	173
Total South Africa						163	163	173	173	173	173
<b>Spain</b>											
Barcelona	La Farga	Fire Refining (S)	Scrap	Operating		20	20	20	20	20	20
Berango (Vizcaya)	ELMET	Electrolytic	Anode	Operating		50	50	53	53	53	53
Huelva	Atlantic Copper S.A. (Freeport McMoran)	Electrolytic	Anode	Operating		260	260	280	300	320	320
Operating + Developing						330	330	353	373	393	393
Total Spain						330	330	353	373	393	393
<b>Sweden</b>											
Ronnskar	Boliden Metall A.B.	Electrolytic (P & S)	Anode, Scrap	Operating		140	240	240	240	240	240
Operating + Developing						140	240	240	240	240	240
Total Sweden						140	240	240	240	240	240
<b>Thailand</b>											
Rayong Copper	Thai Copper Industries Co. (TCI)	Electrolytic	Primary anode	Planned	Financing not secured.						
Planned						0	0	0	0	0	0
Total Thailand						0	0	0	0	0	0

<i>Refineries</i>	<i>Owner(s)</i>	<i>Process</i>	<i>Raw Materials</i>	<i>Current Status</i>	<i>Short Remarks</i>	<i>2000</i>	<i>2001</i>	<i>2002</i>	<i>2003</i>	<i>2004</i>	<i>2005</i>
<b>Turkey</b>											
Denizli (Ismir)	ER Bakir Elektrolitik	Electrolytic	Anode	Operating		20	20	20	20	20	20
Duzce (Hendex)	Bakirson Electrolytic Copper Ltd.	Electrolytic	Anode	Operating		22	22	22	22	22	22
Istanbul (Sarkuysan)	Sarkuysan Electrolytic Copper Ltd.	Electrolytic	Anode	Operating		70	100	100	100	100	100
Operating + Developing						112	142	142	142	142	142
Total Turkey						112	142	142	142	142	142

<i>Refineries</i>	<i>Owner(s)</i>	<i>Process</i>	<i>Raw Materials</i>	<i>Current Status</i>	<i>Short Remarks</i>	<i>2000</i>	<i>2001</i>	<i>2002</i>	<i>2003</i>	<i>2004</i>	<i>2005</i>
<b>United States</b>											
Amarillo	Grupo Mexico	Electrolytic	Anode	Operating	Operating below capacity.	450	450	450	450	450	450
Bagdad	Phelps Dodge Corp.	Electrowinning	Leach	Operating		10	10	10	10	10	10
Carrollton	Southwire Co.	Electrolytic (S)	Anode, Scrap	Closed (2000)	Feed is mostly scrap.	140					
Chino (Santa Rita)	Phelps Dodge/Mitsubishi	Electrowinning	Leach	Operating	On care & maintenance (2002).	65	55	55	55	55	55
El Paso	Phelps Dodge Corp.	Electrolytic	Anode	Operating		415	415	415	415	415	415
Garfield	Kennecott (Rio Tinto)	Electrolytic	Anode	Operating	New plant started in 1995.	320	320	320	320	320	320
Indiana	Essex Group	Fire Refining (S)	Scrap, Blister	Operating		18	18	18	18	18	18
Johnson Camp	Nord Resources	Electrowinning	Leach	Operating	Anticipate increase.	2	1	1	8	8	8
Lisbon Valley	Summo Minerals Corp.	Electrowinning	Leach	Developing	EIS approved, financing delay.				9	9	9
Miami	Phelps Dodge	Electrolytic	Anode	Operating	Temporarily closed (2002).	172	172	172	172	172	172
Miami	Phelps Dodge Corp.	Electrowinning	Leach	Operating	Temporarily closed (2002).	75	50	50	50	50	50
Miami Leach	BHP Copper Co.	Electrowinning	Leach	Operating		12	12	12	12	12	12
Mineral Park	Equatorial Mining	Electrowinning	Leach	Operating		5	5	5	5	5	5
Morenci	Phelps Dodge/Sumitomo	Electrowinning	Leach	Operating	Two EW refineries.	300	340	380	380	400	400
Pinto Valley	BHP Copper Co.	Electrowinning	Leach	Operating		8	8	8	8	8	8
Ray	Grupo Mexico	Electrowinning	Leach	Operating	Expanding tankhouse.	47	47	47	47	47	47
Reading	Reading Industries Inc.	Fire Refining (S)	Scrap, Blister	Operating		70	70	70	70	70	70
San Manuel/Kalamazoo	BHP Copper Co.	Electrowinning	Leach	Closed (2001)		25					
Sauget	Cerro Copper Products	Fire Refining (S)	Scrap	Operating	#1 scrap & imported primary blister are fire-refined.	55	55	55	55	55	55
Sierrita	Phelps Dodge	Electrowinning	Leach	Operating	Plant started in May 1987.	18	18	18	18	18	18
Silver Bell	Grupo Mexico	Electrowinning	Leach	Operating	Producing 15% over design capacity.	19	19	19	19	19	19

<i>Refineries</i>	<i>Owner(s)</i>	<i>Process</i>	<i>Raw Materials</i>	<i>Current Status</i>	<i>Short Remarks</i>	<i>2000</i>	<i>2001</i>	<i>2002</i>	<i>2003</i>	<i>2004</i>	<i>2005</i>
Tonopah	Equatorial Mining	Electrowinning	Leach	Operating		15	23	23	23	23	23
Tyrone Leach SX-EW	Burro Chief Copper Co. (Phelps Dodge)	Electrowinning	Leach	Operating		75	75	75	75	75	75
Warrenton	American Iron & Metal Inc	Fire Refining (S)	Scrap, blister	Operating	Was closed 1999 and restarted Feb. 2000.	32	32	32	32	32	32
White Pine	Considar Inc.	Electrolytic	Anode	Operating		75	75	75	75	75	75
Yerington (MacArthur)	Arimetco International Inc.	Electrowinning	Leach	Operating	Includes Yerrington & MacArthur projects.	11	1	1	1	1	1
					Operating + Developing	2,434	2,271	2,311	2,327	2,347	2,347
Carlota	Cambior Inc.	Electrowinning	Leach	Planned							
OK Mine	Nevada Star Resource Corp.	Electrowinning		Planned							
Sullivan/Paradise Peak (Au)	Arimetco International Inc.	Electrowinning	Leach	Planned	Company in bankruptcy.						
					Planned	0	0	0	0	0	0
					Operating + Developing	2,434	2,271	2,311	2,327	2,347	2,347
					Total United States	2,434	2,271	2,311	2,327	2,347	2,347
<b>Uzbekistan</b>											
Almalyk Refinery	Almalyk Mining and Metallurgical Complex	Electrolytic	Anode	Operating	Government will retain 51% stake.	115	115	115	115	115	115
					Operating + Developing	115	115	115	115	115	115
					Total Uzbekistan	115	115	115	115	115	115
<b>Vietnam</b>											
Sin Quen	Vietnam Mineral Corp (Vimico)	Electrolytic		Planned	Potential 10,000 tpy with associated smelter.						
					Planned	0	0	0	0	0	0
					Total Vietnam	0	0	0	0	0	0

<i>Refineries</i>	<i>Owner(s)</i>	<i>Process</i>	<i>Raw Materials</i>	<i>Current Status</i>	<i>Short Remarks</i>	<i>2000</i>	<i>2001</i>	<i>2002</i>	<i>2003</i>	<i>2004</i>	<i>2005</i>
<b>Yugoslavia</b>											
Bor	Rudarsko-Topionickarski Basen Bor (RTB Bor)	Electrolytic	Concs., Scrap	Operating		170	170	170	170	170	170
					Operating + Developing	170	170	170	170	170	170
					Total Yugoslavia	170	170	170	170	170	170
<b>Zambia</b>											
Bwana Mkubwa	First Quantum Minerals	Electrowinning	Leach	Operating	Treats ore from neighbouring Lonshi (Congo) deposit.	10	10	20	20	20	30
Chibuluma South	Metorex (41% Crew Development Corp.)	Electrowinning	Leach	Operating	On care & maintenance (2002).		2	16	16	16	16
Mufulira Refinery	Glencore (46%), First Quantum (44%), ZCCM (10%)	Electrolytic	Anode	Operating		250	265	265	265	265	265
Nchanga TLP	Anglo American (80%), Zambia Consolidated Copper Mines Ltd. - ZCCM	Electrowinning		Operating		70	80	80	80	80	80
Nkana (Kitwe)	Zambia Consolidated Copper Mines Ltd. - ZCCM	Electrolytic	Anode	Operating	Rated plant capacity is 236,000 tpy copper.	180	180	200	200	200	200
Nkana Slag Dumps (Chambishi)	Avmin	Electrowinning	Leach	Operating			3	4	4	7	7
					Operating + Developing	510	540	585	585	588	598
					Total Zambia	510	540	585	585	588	598
<b>Zimbabwe</b>											
Alaska Refinery	Mhangura Copper Mines	Electrolytic	Anode	Operating	Production has fallen to less than 8,000t in 1998 due to a lack of feed.	15	15	15	15	15	15
Bindura	Bindura Nickel Corp. Ltd.	Electrowinning	Cu/Ni matte	Operating		1	1	1	1	1	1
Eiffel Flats	Rio Tinto Mining (Zimbabwe) Ltd.	Electrowinning	Cu/Ni matte	Operating	Toll refining of BCL (Botswana) matte.	6	6	6	6	6	6
Sanyati Oxide	Reunion Mining plc	Electrowinning	Leach	Operating	Production started in November 95.	8	8	8	8	8	8
					Operating + Developing	30	30	30	30	30	30
					Total Zimbabwe	30	30	30	30	30	30

<i>Refineries</i>	<i>Owner(s)</i>	<i>Process</i>	<i>Raw Materials</i>	<i>Current Status</i>	<i>Short Remarks</i>	<i>2000</i>	<i>2001</i>	<i>2002</i>	<i>2003</i>	<i>2004</i>	<i>2005</i>
<i>World Total Operating + Developing</i>						16,992	17,446	17,945	18,311	18,763	19,129
<i>World Total Planned</i>						0	20	55	55	105	163
<i>World Total</i>						16,992	17,466	18,000	18,366	18,868	19,292



Table 8. WORLD COPPER ELECTROWINNING PLANTS CAPACITIES 2000 to 2005

Refinery Grade

<i>EW Plants</i>	<i>Owner(s)</i>	<i>Process</i>	<i>Raw Materials</i>	<i>Current Status</i>	<i>Short Remarks</i>	<i>2000</i>	<i>2001</i>	<i>2002</i>	<i>2003</i>	<i>2004</i>	<i>2005</i>
<b>Argentina</b>											
San Jorge	Northern Orion	Electrowinning		Planned							
Planned						0	0	0	0	0	0
Total						0	0	0	0	0	0
<b>Australia</b>											
Girilambone	Straits Engineering (60%), Nord Pacific Ltd. (40%)	Electrowinning	Leach	Operating		18	6	3			
Mount Cuthbert	Matrix Metals	Electrowinning		Operating		6	6	6	6	6	6
Mt. Gordon (Gunpowder)	Western Metals	Electrowinning	Leach	Operating		35	50	50	50	50	50
Nifty SX-EW	Straits Resources	Electrowinning	Copper-bearing fluids	Operating		17	25	25	25	25	25
Olympic Dam	Western Mining Corp.	Electrowinning	Leach	Operating		8	8	8	8	8	8
Port Pirie	Pasminco	Electrowinning	Leach	Operating		4	4	4	4	4	4
Operating + Developing						88	99	96	93	93	93
Whim Creek/Radio Hill	Straits Resources	Electrowinning		Planned							
Planned						0	0	0	0	0	0
Total						88	99	96	93	93	93
<b>Belgium</b>											
Hoboken	Umicore	Electrowinning		Planned	Will treat secondary material from Hoboken smelter.					40	40
Planned						0	0	0	0	40	40
Total						0	0	0	0	40	40

<i>EW Plants</i>	<i>Owner(s)</i>	<i>Process</i>	<i>Raw Materials</i>	<i>Current Status</i>	<i>Short Remarks</i>	<i>2000</i>	<i>2001</i>	<i>2002</i>	<i>2003</i>	<i>2004</i>	<i>2005</i>
<b>Canada</b>											
Sudbury EW (Copper Cliff)	Inco Ltd.	Electrowinning	Matte	Operating		9	9	9	9	9	9
					Operating + Developing	9	9	9	9	9	9
					Total	9	9	9	9	9	9
					Canada	9	9	9	9	9	9

<i>EW Plants</i>	<i>Owner(s)</i>	<i>Process</i>	<i>Raw Materials</i>	<i>Current Status</i>	<i>Short Remarks</i>	<i>2000</i>	<i>2001</i>	<i>2002</i>	<i>2003</i>	<i>2004</i>	<i>2005</i>
<b>Chile</b>											
Andacollo	Aur Resources (70%), CMP (20%), Enami (10%)	Electrowinning	Leach	Operating		22	22	22	22	22	22
Cerro Colorado	Rio Algom Ltd.	Electrowinning	Leach	Operating		125	125	125	125	125	125
Chuquicamata	Codelco	Electrowinning	Leach	Operating		141	141	130	96	85	85
Collahuasi	Minorco (44%), Falconbridge (44%), Mitsui + Nippon (12%)	Electrowinning	Leach	Operating		58	59	58	58	58	58
El Abra	Codelco (49%), Phelps Dodge (51%)	Electrowinning	Leach	Operating		200	221	240	250	250	250
El Soldado	Cia. Minera Disputada de Las Condes S.A.	Electrowinning	Leach	Operating		8	8	8	8	8	8
El Teniente	Codelco Chile	Electrowinning	Leach	Operating		4	4	4	8	8	8
El Tesoro/Leonor	Antofagasta Holdings (61%), AMP (39%)	Electrowinning	Leach	Operating			45	85	75	75	75
Escondida	Broken Hill (57.5%), Rio Tinto Corp. (30%), Japan Escondida (10%)	Electrowinning	Leach	Operating		140	145	150	150	150	150
Ivan/Zar	Milpo	Electrowinning	Leach	Operating	Start up in late 1994.	13	13	13	13	13	13
Lo Aguirre	Sociedad Minera Pudahuel Ltda y Cia.	Electrowinning	Crushed copper oxide ore	Closed (2000)		3					
Lomas Bayas	Falconbridge, Noranda	Electrowinning	Leach	Operating		55	60	60	60	60	60
Los Bronces	Cia. Minera Disputada de Las Condes S.A.	Electrowinning		Operating		12	12	27	27	27	27
Mansa Mina	Codelco, Billiton	Electrowinning	Leach	Developing	Will use bioleach technology.				20	20	20
Manto Verde	Empresa Minera de Mantos Blancos S.A.	Electrowinning	Leach	Operating	Start up in late 1995.	60	60	60	60	60	60
Mantos Blancos	Anglo American Corp.	Electrowinning	Leach	Operating		60	60	60	60	60	60
Michilla	Antofagasta Holdings	Electrowinning	Copper ore/leach	Operating	Lince Mine and Michilla operations.	51	51	51	51	51	51
Quebrada Blanca	Aur Resources (76.5%), Soc. Minera Pudahuel (13.5%), ENAMI (10%)	Electrowinning	Leach	Operating	Bacterial and heap leaching used.	75	75	75	75	75	75
Radomiro Tomic	Codelco Chile	Electrowinning	Leach	Operating		190	250	280	280	280	280

<i>EW Plants</i>	<i>Owner(s)</i>	<i>Process</i>	<i>Raw Materials</i>	<i>Current Status</i>	<i>Short Remarks</i>	<i>2000</i>	<i>2001</i>	<i>2002</i>	<i>2003</i>	<i>2004</i>	<i>2005</i>
Salvador	Codelco Chile	Electrowinning	Leach	Operating	Production started in 1994.	25	25	25	25	25	25
San Jose (Socavon)	Soc. Punta del Cobre (Pucobre)	Electrowinning	Leach	Operating		7	8	8	8	8	8
Zaldivar	Placer Dome Inc .	Electrowinning	Leach	Operating	Start up in 1995.	150	130	132	132	132	132
					Operating + Developing	1,399	1,514	1,613	1,603	1,592	1,592
Gaby Sur	Codelco	Electrowinning	Leach	Planned						50	90
					Planned	0	0	0	0	50	90
					Total Chile	1,399	1,514	1,613	1,603	1,642	1,682
<b>China</b>											
SX-EW plants		Electrowinning	Leach	Operating		35	35	45	45	50	50
					Operating + Developing	35	35	45	45	50	50
					Total China	35	35	45	45	50	50
<b>Congo</b>											
Kakanda Project	International Panorama Resource Corp. (51%), Gecamines (49%)	Electrowinning		Planned							
					Planned	0	0	0	0	0	0
					Total Congo	0	0	0	0	0	0
<b>Cuba</b>											
Mantua	Geominera, Northern Orion	Electrowinning		Planned							18
					Planned	0	0	0	0	0	18
					Total Cuba	0	0	0	0	0	18
<b>Cyprus</b>											
Tamasos (Skouriotissa)	Oxiana Resources NL, Hellenic Metallurgy Co. Ltd.	Electrowinning	Leach	Operating		10	10	12	12	12	12
					Operating + Developing	10	10	12	12	12	12
					Total Cyprus	10	10	12	12	12	12

<i>EW Plants</i>	<i>Owner(s)</i>	<i>Process</i>	<i>Raw Materials</i>	<i>Current Status</i>	<i>Short Remarks</i>	<i>2000</i>	<i>2001</i>	<i>2002</i>	<i>2003</i>	<i>2004</i>	<i>2005</i>
<b>Finland</b>											
Kokkola	OMG Kokkola Chemicals Oy	Electrowinning	Leach	Developing				15	15	15	15
					Operating + Developing	0	0	15	15	15	15
					Total Finland	0	0	15	15	15	15
<b>Iran</b>											
Sar Cheshmeh	National Iranian Copper Co.	Electrowinning	Leach	Operating	Plant was built in 1995.	15	15	15	15	15	15
					Operating + Developing	15	15	15	15	15	15
					Total Iran	15	15	15	15	15	15
<b>Mexico</b>											
Cananea	Grupo Mexico	Electrowinning	Leach	Operating		35	77	77	77	77	77
La Caridad	Mexicana de Cobre S. A.	Electrowinning	Leach	Operating		25	25	25	25	25	25
					Operating + Developing	60	102	102	102	102	102
Luz del Cobre (San Antonio)	Golden News Resources	Electrowinning		Planned							
Piedras Verdes	Phelps Dodge Corp. (70%), AZCO Mining (30%)	Electrowinning		Planned							
Santo Tomas	Exall Resources	Electrowinning		Planned							
					Planned	0	0	0	0	0	0
					Operating + Developing	60	102	102	102	102	102
					Total Mexico	60	102	102	102	102	102
<b>Mongolia</b>											
Erdenet	Erdenet Mining & Concentrating	Electrowinning	Leach	Operating	From stockpiled ore. Started Fall 1996.	4	5	5	22	22	22
					Operating + Developing	4	5	5	22	22	22
					Total Mongolia	4	5	5	22	22	22

<i>EW Plants</i>	<i>Owner(s)</i>	<i>Process</i>	<i>Raw Materials</i>	<i>Current Status</i>	<i>Short Remarks</i>	<i>2000</i>	<i>2001</i>	<i>2002</i>	<i>2003</i>	<i>2004</i>	<i>2005</i>
<b>Myanmar</b>											
Letpadaung	Ivanhoe Myanmar Holdings (50%), Mining Enterprise No.1	Electrowinning		Planned						125	125
					Planned	0	0	0	0	125	125
Monywa	Ivanhoe Myanmar (50%), Mining Enterprise No.1	Electrowinning	Leach	Operating		28	30	30	30	30	30
					Operating + Developing	28	30	30	30	30	30
					<b>Total Myanmar</b>	<b>28</b>	<b>30</b>	<b>30</b>	<b>30</b>	<b>155</b>	<b>155</b>
<b>Namibia</b>											
Haib Mine	Haib Copper Mining and Exploration Co.	Electrowinning	Leach	Planned	Production to last 25 years.						
					Planned	0	0	0	0	0	0
					<b>Total Namibia</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Norway</b>											
Kristiansand	Falconbridge Nikkelverk A.S.	Electrowinning	Cu/Ni matte	Operating	Processes imported Cu/Ni matte. Expansion to 60,000 tpy possible.	40	40	40	40	40	40
					Operating + Developing	40	40	40	40	40	40
					<b>Total Norway</b>	<b>40</b>	<b>40</b>	<b>40</b>	<b>40</b>	<b>40</b>	<b>40</b>

<i>EW Plants</i>	<i>Owner(s)</i>	<i>Process</i>	<i>Raw Materials</i>	<i>Current Status</i>	<i>Short Remarks</i>	<i>2000</i>	<i>2001</i>	<i>2002</i>	<i>2003</i>	<i>2004</i>	<i>2005</i>
<b>Peru</b>											
Cerro Verde I Leach Pad	Phelps Dodge (82.4%)	Electrowinning	Leach	Operating		65	75	84	84	84	84
Cuajone	Grupo Mexico (54.1%), Marmon Corp. (15%), Phelps Dodge (13.9%)	Electrowinning	Leach	Operating	Leachate processed at Toquepala.	5	5	5	5	5	5
Tintaya/Chabucas	BHP Copper Co.	Electrowinning	Leach	Developing				17	34	34	40
Toquepala	Southern Peru Copper Corp.	Electrowinning	Leach	Operating	Includes Cuajone leachate.	62	62	62	51	51	51
Operating + Developing						132	142	168	174	174	180
Cerro Negro	Phelps Dodge	Electrowinning		Planned			20	20	20	20	20
La Granja	BHP Billiton	Electrowinning	Leach	Planned	Project on hold. Planned capacity 40,000 tpy.						
Planned						0	20	20	20	20	20
Total Peru						132	162	188	194	194	200
<b>South Africa</b>											
Impala Platinum	Impala Platinum Ltd.	Electrowinning	Matte	Operating		7	7	7	7	7	7
Marikana/ Transvaal	Western Platinum	Electrowinning	Pt ores	Operating		2	2	2	2	2	2
O Okiep	Metorex (Crew Development Corp.) 89%	Electrowinning		Developing				10	10	10	10
Rustenburg	Rustenburg Platinum Mines Ltd.	Electrowinning	Matte	Operating		7	7	7	7	7	7
Operating + Developing						16	16	26	26	26	26
Total South Africa						16	16	26	26	26	26

<i>EW Plants</i>	<i>Owner(s)</i>	<i>Process</i>	<i>Raw Materials</i>	<i>Current Status</i>	<i>Short Remarks</i>	<i>2000</i>	<i>2001</i>	<i>2002</i>	<i>2003</i>	<i>2004</i>	<i>2005</i>
<b>United States</b>											
Bagdad	Phelps Dodge Corp.	Electrowinning	Leach	Operating		10	10	10	10	10	10
Chino (Santa Rita)	Phelps Dodge/Mitsubishi	Electrowinning	Leach	Operating	On care & maintenance (2002).	65	55	55	55	55	55
Johnson Camp	Nord Resources	Electrowinning	Leach	Operating	Anticipate increase.	2	1	1	8	8	8
Lisbon Valley	Summo Minerals Corp.	Electrowinning	Leach	Developing	EIS approved, financing delay.				9	9	9
Miami	Phelps Dodge Corp.	Electrowinning	Leach	Operating	Temporarily closed (2002).	75	50	50	50	50	50
Miami Leach	BHP Copper Co.	Electrowinning	Leach	Operating		12	12	12	12	12	12
Mineral Park	Equatorial Mining	Electrowinning	Leach	Operating		5	5	5	5	5	5
Morenci	Phelps Dodge/Sumitomo	Electrowinning	Leach	Operating	Two EW refineries.	300	340	380	380	400	400
Pinto Valley	BHP Copper Co.	Electrowinning	Leach	Operating		8	8	8	8	8	8
Ray	Grupo Mexico	Electrowinning	Leach	Operating	Expanding tankhouse.	47	47	47	47	47	47
San Manuel/Kalamazoo	BHP Copper Co.	Electrowinning	Leach	Closed (2001)		25					
Sierrita	Phelps Dodge	Electrowinning	Leach	Operating	Plant started in May 1987.	18	18	18	18	18	18
Silver Bell	Grupo Mexico	Electrowinning	Leach	Operating	Producing 15% over design capacity.	19	19	19	19	19	19
Tonopah	Equatorial Mining	Electrowinning	Leach	Operating		15	23	23	23	23	23
Tyrone Leach SX-EW	Burro Chief Copper Co. (Phelps Dodge)	Electrowinning	Leach	Operating		75	75	75	75	75	75
Yerington (MacArthur)	Arimetco International Inc.	Electrowinning	Leach	Operating	Includes Yerrington & MacArthur projects.	11	1	1	1	1	1
Operating + Developing						687	664	704	720	740	740
Carlota	Cambior Inc.	Electrowinning	Leach	Planned							
OK Mine	Nevada Star Resource Corp.	Electrowinning		Planned							
Sullivan/Paradise Peak (Au)	Arimetco International Inc.	Electrowinning	Leach	Planned	Company in bankruptcy.						
Planned						0	0	0	0	0	0
Operating + Developing						687	664	704	720	740	740



EW Plants	Owner(s)	Process	Raw Materials	Current Status	Short Remarks	2000	2001	2002	2003	2004	2005
						Total	United States				
<b>Zambia</b>											
Bwana Mkubwa	First Quantum Minerals	Electrowinning	Leach	Operating	Treats ore from neighbouring Lonshi (Congo) deposit.	10	10	20	20	20	30
Chibuluma South	Metorex (41% Crew Development Corp.)	Electrowinning	Leach	Operating	On care & maintenance (2002).		2	16	16	16	16
Nchanga TLP	Anglo American (80%), Zambia Consolidated Copper Mines Ltd. - ZCCM	Electrowinning		Operating		70	80	80	80	80	80
Nkana Slag Dumps (Chambishi)	Avmin	Electrowinning	Leach	Operating			3	4	4	7	7
Operating + Developing						80	95	120	120	123	133
Total Zambia						80	95	120	120	123	133
<b>Zimbabwe</b>											
Bindura	Bindura Nickel Corp. Ltd.	Electrowinning	Cu/Ni matte	Operating		1	1	1	1	1	1
Eiffel Flats	Rio Tinto Mining (Zimbabwe) Ltd.	Electrowinning	Cu/Ni matte	Operating	Toll refining of BCL (Botswana) matte.	6	6	6	6	6	6
Sanyati Oxide	Reunion Mining plc	Electrowinning	Leach	Operating	Production started in November 95.	8	8	8	8	8	8
Operating + Developing						15	15	15	15	15	15
Total Zimbabwe						15	15	15	15	15	15
<i>World Total Operating + Developing</i>						2,617	2,790	3,015	3,041	3,223	3,239
<i>World Total Planned</i>						0	20	20	20	70	128
<i>World Total</i>						2,617	2,810	3,035	3,061	3,293	3,367

# Operations Update

<i>Country</i>	<i>Name</i>	<i>Owner(s)</i>	<i>Latest Remarks</i>
<b>Mines</b>			
Australia	Olympic Dam	Western Mining Corp.	Company confirmed that it is considering an expansion of up to 500,000 tpy contained copper, but no decision in the near future. Incremental expansions are underway.
Australia	Starra/Mt. Elliot (Selwyn)	Selwyn Mines Australia	Expansion to 24,000 tpy of contained Cu to be completed by March 2002.
Chile	Andina	Codelco Chile	2002 production cutback of 23,000 tpy Cu.
Chile	Chuquicamata	Codelco	2002 production cutback of 45,000 tpy Cu.
Chile	El Abra	Codelco (49%), Phelps Dodge (51%)	The expansion project of 35,000 tpy Cu by leaching low grade ores comes on-stream by end of second quarter 2002.
Chile	El Bronce	JV, Nittetsu Mines (60%), Inversiones Errazuriz (40%)	First shipments in October 2001, full production of 30,000 tpy contained copper expected for April 2002.
Chile	El Teniente	Codelco Chile	2002 production cutback of 25,000 tpy Cu.
Chile	Gaby Sur	Codelco	Development has been suspended due to disputes over water rights.
Chile	Mansa Mina	Alliance Copper Ltd. (Codelco, Billiton)	Construction will start in 2002 and first production in 2003. Targeted capacity is 20,000 tpy cathode.
Chile	Manto Verde	Empresa Minera de Mantos Blancos S.A.	The Mantoruso deposit at Mantoverde will be started in mid-2002. Production will stay at 55,000 tpy copper.
Chile	Salvador	Codelco Chile	2002 production Cutback of 11,300 tpy Cu.
China	Dongchuan	Yunnan Copper	Closed by year-end 2001 due to declining ore grades.
China	Mouding Copper/ Yunnan	Yunnan Copper	Closed in September 2001 due to depleted ore reserves.
Finland	Pyhasalmi	Outokumpu Mining Oy	Mine will be sold to Inmet Mining.
Pakistan	Saindak	Resource Development Corp. (RDC)	Metallurgical Construction Corp. of China has formally taken control of the mine in January 2002. Commercial production of 16,000 tpy copper to start end of 2002.
Papua New Guinea	OK Tedi	Sustainable Development Program Co. (52%), Inmet (18%), PNG Govt (30%)	Mine was shut down for two days in November 2001 as local landowners were blocking the access.
Peru	La Granja	BHP Billiton	BHP Billiton decided not to go ahead with the project due to the high investment costs (US\$ 3 billion).
South Africa	O Okiep	Metorex (Crew Development Corp.) 89%	A tailings plant, producing 10,000 tpy of copper, will replace mined output in 2002.
Spain	Las Cruces	MK Gold Co.	After receiving approval from local authorities construction could start in late 2002. Envisaged production is 63,000 tpy cathode.
United States	Bagdad	Phelps Dodge Corp.	Construction of pilot plant for improved hydrometallurgical process to start in 2nd quarter 2002. The plant treats chalcopyrite concentrates or sulfide ores. The capacity is 16,000 tpy of cathode.
United States	Bingham Canyon	Kennecott	North Concentrator, which had been shut down temporarily, will stay closed permanently. This year's (2002) production level will not be affected by the decision.

<i>Country</i>	<i>Name</i>	<i>Owner(s)</i>	<i>Latest Remarks</i>
United States	Mission (Eisenhower, Pima, San Xavier)	Grupo Mexico	Effective January 2002 output cut again, this time by roughly 15,000 tpy leaving a production of 39,000 tpy of contained copper.
Zambia	Chibuluma South	Metorex (41% Crew Development Corp.)	After start up in May 2001 the mine (16,000 tpy cathode) has been put on care & maintenance due to market conditions.
Zambia	Nchanga	Anglo American (80%), Zambia Consolidated Copper Mines Ltd. - ZCCM	Nchanga open pit will only return to normal production at the end of 2002.

### ***Smelters***

Australia	Mount Isa	Mount Isa Mines Ltd.	A spill of molten metal caused the stoppage of the anode furnace in mid November 2001. The furnace was restarted at the beginning of December. As a consequence a loss of 7,000t of cathode was estimated.
Canada	Gaspé Smelter (Quebec)	Noranda Inc.	Smelter will be shut down from the end of April 2002 for at least 6 months. Lost production will amount to at least 50,000 tonnes.
China	Guixi	Jiangxi Copper Corp.	Capacity is increasing to 350,000 tonnes by the end of 2002.
Russia	Karabash Smelter (Urals)	Kyshtym Refinery	UGMK attempts to take control of the smelter which had been declared bankrupt but is still operating. Majority owner is the Kyshtym refinery.

### ***Refineries***

Canada	CCR Refinery (Montreal)	Noranda Inc.	Annual 2002 production will be 45,000 tonnes below design capacity of 360,000t.
China	Daye/ Hubei		With the completion of a 40,000 tpy unit at the end of 2002 capacity will increase to 150,000 tpy.
China	Guixi	Jiangxi Copper Corporation	The increased capacity of 400,000 tpy (2002/2003) will include 50,000 tpy from scrap.
China	Jinchuan	Local Government	Expansion plans to 120,000 tpy moved forward to start up in 2003. Further increase to 150,000 tpy in 2005 considered.
China	Yantai	Jinpeng Nonferrous Metals	Plans to raise capacity from 35,000 tpy to 100,000 tpy by 2003 and 200,000 tpy by 2005.
United States	Amarillo	Grupo Mexico	Production has been cut back by 29% or 95,000 tpy with the start of December 2001 as a consequence of lower feed supply.