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ALUMINIUM

Because of its strong affinity to oxygen, aluminium is almost never found in the elemental state; instead it is found in oxides or silicates. Almost all metallic aluminium is produced from the ore bauxite. 80% of the aluminium used in a personal computer can be recycled. While aluminium was used in some internal components of a PC in earlier years, the material is now no longer used, as it is not heat resistant enough.

Top Importing Countries	Top Exporting Countries	Selected Companies	Selected mines
<ul style="list-style-type: none"> • US (22,7%) • China (17,6%) • Spain (7,7%) • Italy (6,7%) • Germany (6,6%) 	<ul style="list-style-type: none"> • Brazil (29,0%) • India (17,8%) • Jamaica (16,9%) • Australia (14,1%) • Guyana (5,4%) 	<ul style="list-style-type: none"> • UC Rusal • Alcoa • Alcan • Chalco • Hydro Aluminium 	<ul style="list-style-type: none"> • Sangaredi (Guinea) • Huntly / Willowdale (Australia) • Weipa (Australia) • MRN-Oriximina (Brazil) • Worsley (Australia) • Gove (Australia) • Los Pijiguaos (Venezuela) • Turgay and Krasno-Oktyabrsky (Kazakhstan) • Panchpatmali Hills (India)

End Using Industry	Demand (%)*
Transportation	37%
Packaging	23%
Building	13%
Electrical	8%
Machinery	8%
Consumer durables	7%
Other	4%

*These figures are based on data from the United States

Issues Related to Aluminium mining;

- Protest about opening an new Aluminium Plant in Trinidad
- Two of Britain's biggest mining companies, Anglo American and Rio Tinto, will refuse to sign up to African joint ventures with Chinese companies unless they comply with Western environmental and human rights standards.
- A Report of the Indian People's Tribunal on Environment and Human Rights has termed UAIL's bauxite mining operations in Orissa's Kshipur region unconstitutional, illegal and against the people's interests and demanded that it will be scrapped.

- Tribespeople in Eastern India marched against a bauxite mine planned by Britain's Vedanta Resources PLC.
- Alcoa made it into the Toxic 100 Index of the Political Economy Research Institute.

Sources:

- <http://en.wikipedia.org/wiki/Aluminium>
- UN Comtrade HS 02, Aluminium ores and concentrates
- www.infomine.com
- United States Geological Survey, Aluminium Commodity Summary, <http://minerals.usgs.gov/minerals/pubs/commodity/aluminum/mcs-2009-alumi.pdf> (17-02-09).
- Sujatha Fernandes, “Smelter Struggle: Trinidad Fishing Community Fights Aluminum Project”, CorpWatch, 06-09-2006 <<http://www.corpwatch.org/article.php?id=14099>>, 16-12-2008
- Helen Power, “British miners get tough with China”, Telegraph, 05-03-2008, <<http://www.telegraph.co.uk/finance/newsbysector/energy/2785376/British-miners-get-tough-with-China.html>> 16-12-2008
- Indian People’s Tribunal, Press release, 14-10-2006 http://www iptindia.org/pdf/Kashipur_Press_Release.pdf 16-12-2008>

ANTIMONY

Antimony rarely occurs in its native metallic form in nature. Antimony is found in trace amounts in silver, copper and lead ores. Antimony is mostly used in automotive and in lead-acid batteries, but its overall use in batteries is decreasing. Antimony is expected to be completely phased out by 2010. Antimony cannot be recycled from a personal computer.

Top Importing Countries	Top Exporting Countries	Selected Companies	Selected mines
<ul style="list-style-type: none"> China (52,4%) Vietnam (24,9%) Italy (4,8%) USA (4,5%) Kyrgyzstan (4,1%) 	<ul style="list-style-type: none"> Bolivia (27,9%) Vietnam (27,6%) Russia (16,6%) Australia (7,1%) Kazakhstan (4,6%) 	<ul style="list-style-type: none"> Freewest Resources Canada Inc. Namex Explorations Inc. Action Minerals Inc. AGD Mining Cambria Mining Wogen Plc China Metallurgic Group Zhongye Hunan Tungsten and Antimony Co. Ltd. 	<ul style="list-style-type: none"> Costerfield Mine (Australia) BeaverBrook (USA) Zhazixi Antimony mine (China) Wuling Antimony Mine Jiangxi Province (China)

End Using Industry	Demand (%)*
Flame retardants	40%
Transportation, including batteries	22%
Chemicals	14%
Ceramics and glass	11%
Other	13%

*These figures are based on data from the United States

Issues Related to Antimony mining and processing:

- Negative health and environmental effects.
- Toxic fumes and wild life being poisoned by tin/antimony processing plant in Three Pagodas Pass, Thailand.

Sources:

- UN Comtrade HS 02, Antimony ores and concentrates
- United States Geological Survey, Antimony Commodity Summary, <http://minerals.usgs.gov/minerals/pubs/commodity/antimony/mcs-2009-antim.pdf> (17-02-09).
- Basel Action Network; "Exporting Harm: The high-tech trashing of Asia", 25-02-2002, Annex 1: Composition of a Personal Desktop Computer based on a typical desktop computer, weighing ~70lbs
- Australian Government, Department of the Environment, Water, Heritage and the Arts, "Substance Fact Sheet, Antimony", no date < <http://www.npi.gov.au/database/substance-info/profiles/10.html#sourcesof>>, 17-02-09).
- Mines and Communities, "Burma Update: antimony mine ruse", 02-06-2008, <http://www.minesandcommunities.org/article.php?a=1576> 16-12-2008

BARIUM

Barium rarely occurs in its native metallic form. The main source is Barite, which is crystallized barium sulphate. Barium is unstable in its pure form, and toxic in combination with air. It is not possible to recycle Barium from a personal computer.

Top Importing Countries	Top Exporting Countries	Selected Companies
<ul style="list-style-type: none"> • US (11,9%) • China (8,4%) • Other Asia, nes (7,3%) • UK (6,5%) • Korea (5,2%) 	<ul style="list-style-type: none"> • Germany (56,2%) • Japan (17,4%) • China (13,4%) • Mexico (4,4%) • USA (4,3%) 	<ul style="list-style-type: none"> • Nianhong (China) • Atlantic Barite Lts. (Canada) • CIMBAR Performance Minerals Inc. (Canada) • Drilling Mud Co. (Vietnam) • Hoa An Co.

End Using Industry	Demand (%)*
Gas and oil industry	95%
Other	5%

*These figures are based on data from the United States

Sources:

- UN Comtrade HS 02 Sulphates of Barium
- Basel Action Network; "Exporting Harm: The high-tech trashing of Asia", 25-02-2002, Annex 1: Composition of a Personal Desktop Computer based on a typical desktop computer, weighing ~70lbs
- <http://en.wikipedia.org/wiki/Barium>

BERYLLIUM

Beryllium is a toxic material, and national and international guidelines determine the use of the metal. Beryllium was recycled mostly from scrap generated during the manufacture of beryllium products. The most important sources of beryllium and its compounds are beryl and bertrandite. 10% of the beryllium consumed in the United States comes from recycled sources.

Top Importing Countries	Top Exporting Countries	Selected Companies	Selected mines and smelters
<ul style="list-style-type: none"> • US (55,8%) • France (11,8%) • Russia (6,2%) • Japan (5,4%) • South Africa (5,1%) 	<ul style="list-style-type: none"> • US (62,2%) • Kazakhstan (28,2%) • Japan (6,2%) • UK (2,1%) • Norway (0,5%) 	<ul style="list-style-type: none"> • Brush Wellman (US) • Shuikoushan Non-Ferrous Co., Ltd • Fuyun Hengsheng • Beryllium Industry Co., Ltd • UMP and Ningbo Shengtai Electronic Metal Material Co. Ltd. 	<ul style="list-style-type: none"> • Topaz-Spor Mountain region of Juab County, Utah (USA) • Smelters; 6th Smelting Plant in Songbai town, Changnin City, Hunan Province (China)

End Using Industry	Demand (%)*
Electronics	50%
Other (aerospace, defense, industrial components, etc.)	50%

*These figures are based on data from the United States

Issues Related to Beryllium mining

- Exposure to beryllium can lead to chronic beryllium disease, a fatal lung disease, among mine workers.

Sources:

- UN Comtrade HS 02, Beryllium unwrought powders
- David Deubner et al, "Beryllium Sensitization, Chronic Beryllium Disease, and Exposures at a Beryllium Mining and Extraction Facility" in: Applied Occupational and Environmental Hygiene Volume 16(5): 579–592, 2001 <http://www.brushwellman.com/EHS/OHR/sensitization.pdf> 16-12-2008.
- United States Geological Survey, Beryllium Commodity Summary, <http://minerals.usgs.gov/minerals/pubs/commodity/antimony/mcs-2009-antim.pdf> (17-02-09).

COBALT

Cobalt ore is usually not mined alone, but tends to be produced as a by-product of nickel and copper mining activities. It also occurs in combination with sulphur and arsenic. The metal weighs more than iron, but less than nickel, and is mostly used for its magnetic properties. The main ores of cobalt are cobaltite, erythrite, glaucodot, and skutterudite. Cobalt used in electronics has a recycling rate of 85%.

Top Importing Countries	Top Exporting Countries	Selected Companies	Selected mines and smelters
<ul style="list-style-type: none"> China (66,3%) Finland (22.6%) India (5,1%) US (1,7%) Zimbabwe (1,4%) 	<ul style="list-style-type: none"> South Africa (48,5%) US (19,5%) Uganda (15,5%) Zambia (8,2%) Germany (2,5%) 	<ul style="list-style-type: none"> Artisanal mining Tenke Fungurume Mining (US/Sweden) Boss Mining/Camec The Forrest Group Gecamines (DRC) 	<ul style="list-style-type: none"> Luis Wishi mine (DRC) Big Hill (DRC)

End Using Industry	Demand (%)
Electronics	N/A
Airplanes	N/A
Automobile	N/A

Issues Related to Cobalt mining

- Child labour in Congo cobalt and copper mines.
- Extremely low wages
- Extremely long working hours
- Accidents and diseases due to lack of health and safety measures
- Land and water pollution
- Radioactivity of uranium attached to the mined cobalt

Sources:

- UN Comtrade HS 02, Cobalt ores and concentrates
- Basel Action Network; “Exporting Harm: The high-tech trashing of Asia”, 25-02-2002 Annex 1: Composition of a Personal Desktop Computer based on a typical desktop computer, weighing ~70lbs
- <http://en.wikipedia.org/wiki/Cobalt>
- Simon Clark, Michael Smith and Franz Wild, “China in Africa: Young Workers, Deadly Mines”, Bloomberg markets, September 2008
http://www.bloomberg.com/news/marketsmag/mm_0908_story3.html 16-12-2008
- Swedwatch, “Powering the Mobile World; Cobalt production for batteries in the DRC and Zambia”, makeITfair, November 2007, <http://makeitfair.org/the-facts/reports/Powering-the-Mobile-World-Swedwatch-November-2007.pdf> (24-02-09).

COPPER

Copper can be found in a variety of countries around the world, and is mined in its mineral form. Extraction often occurs in large, open pit mines, for example in Chile and the United States. Copper can easily be recycled, as 90% of the copper in electronic products can be retrieved.

Top Importing Countries	Top Exporting Countries	Selected Companies	Selected mines and smelters
<ul style="list-style-type: none"> • Japan (29,4%) • China (21,55) • India (11,8%) • Korea (9,8%) • Germany (6,6%) 	<ul style="list-style-type: none"> • Chile (46,3%) • Peru (12,9%) • Australia (11,8%) • Argentina (6,3%) • Canada (5,6%) 	<ul style="list-style-type: none"> • Freeport McMoran • Codelco • BHP Billiton • Xstrata • Anglo American • Grupo Mexico • KGHM Polska Miedz • Antofagasta • Norilsk Nickel Mining • Rio Tinto 	<ul style="list-style-type: none"> • Escondida (Chile) • Chuquicamata (Chile) • Grasberg (Indonesia) • Collahuasi (Chile) • El Tiente (Chile) • Morenici (USA) • Zhezkazgan (Kazakhstan) • Mt Isa (Australia) • Antamina (Peru) • Los Pelambres (Chile)

End Using Industry	Demand (%)*
Building and construction	51%
Electronics	19%
Other	30%

*These figures are based on data from the United States

Issues Related to Copper Mining

- Protests against the low rate of profit sharing for local communities around copper mines in Chile.
- A report released by Oxfam shows that cyanide-laden spillages from a mine financed by ANZ in the Philippines has devastated local fishermen communities.
- Low profit sharing for local communities around the Lumwana Copper Mine, Zambia
- Copper mine La Orya in Peru made it into The Blacksmith Institute's list of World's Worst Polluted Places of 2008.
- Members at Xstrata's Copper Kidd Metallurgical facility near Timmins Ontario (US) went on strike over the company's refusal to adequately address workers concerns in collective bargaining.
- Negative effects of copper mining on the financial development of Zambia.

Sources

- UN Comtrade HS 02, Cobalt ores and Concentrates
- Daniel Estrada, "Chile: Copper Boom - Cui Bono?", CorpWatch, 11-01-2008 <<http://www.corpwatch.org/article.php?id=14893>> 16-12-2008
- Shanta Martin and Kelly Newell, "Mining ombudsman case report" Rapu Rapu polymetallic mine", Oxfam Australia, Octobre 2008, <<http://www.oxfam.org.au/campaigns/mining/docs/rapurapu-case-report.pdf>>
- Dansten Kaunda, 'Development-Zambia: Sharing the Copper Windfall', Inter Press Service, 19-08-2008 <<http://www.ipsnews.net/news.asp?idnews=43604>> 16-12-2008
- Blacksmith Institute "The World's Worst Polluted Placed. The top ten of the dirty thirty", September 2007 <<http://www.blacksmithinstitute.org/wwpp2007/finalReport2007.pdf>> 16-12-2008

- CAW Canada, press release, “CAW Members on Strike at Xstrata Copper”, 01-10-2008, <<http://www.caw.ca/en/3951.htm>> 16-12-2008
- Abi Dymond, “Undermining development? Copper mining in Zambia”, Schotland’s Aid Agency, October 2007 <<http://www.actsa.org/Pictures/UpImages/pdf/Undermining%20development%20report.pdf>>

CHROMIUM

Chromite, the ore mined to produce chromium, is refined to produce two kinds of chromium; ferrochromium and metallic chromium. The metal is mostly used in combination with other metals, in so-called ‘superalloys’. The metals is not openly traded on markets, but through confidential purchase agreements between two parties. Chromium cannot be recycled.

Top Importing Countries	Top Exporting Countries	Selected Companies
<ul style="list-style-type: none"> China (67,8%) Russia (13,4%) Japan (2,9%) Germany (21,5%) US (2,2%) 	<ul style="list-style-type: none"> South Africa (29,9%) India (20,8%) Kazakhstan (14,1%) Turkey (12,8%) Pakistan (4,6%) 	<ul style="list-style-type: none"> Samancor (South African BHP Billton subsidiary) Xstrata (SA) Freewest Resources Canada Inc. Gossan Resources Limited Merafe Resources Limited

End Using Industry	Demand (%)
Electronics	N/A
Other	N/A

Issues Related to Chromium Mining

- Chromium poisoning in Gujarat, India
- Work related deaths reported in chromium mine in the town of Bulqiza, northern Albania
- The chromium mine in Sukinda, India made it into it into The Blacksmith Intitute’s list of World’s Worst Polluted Places of 2008.

Sources:

- UN Comtrade HS 02 Chromium Ores and concentrates
- Basel Action Network; “Exporting Harm:The high-tech trashing of Asia”, 25-02-2002 Annex 1: Composition of a Personal Desktop Computerbased on a typical desktop computer, weighing ~70lbs
- <http://en.wikipedia.org/wiki/Chromium>
- Jagdish Patel, “Struggle for Compensation for Chromium Poisoning” Asia Monitor Resource Centre, not dated, <http://www.amrc.org.hk/alu_article/occupational_safety_and_health_in_asia/struggle_for_compensation_for_chromium_poisoning> 16-12-2008
- BalkanInsight.com, “Explosion Kills Albanian Miner”, 06-11-2008 <<http://balkaninsight.com/en/main/news/14601/>> 16-12-2008
- Blacksmith Institute “The World’s Worst Polluted Placed. The top ten of the dirty thirty”, September 2007 < <http://www.blacksmithinstitute.org/wwpp2007/finalReport2007.pdf>> 16-12-2008

GALLIUM

Gallium is found as a trace metal in bauxite, the ore that produces aluminium. It cannot be recycled.

Top Importing Countries	Top Exporting Countries	Selected Companies	Selected mines and smelters
<ul style="list-style-type: none"> Japan (28,6%) US (17,0%) Korea (7,4%) Germany (7,3%) China (6,1%) 	<ul style="list-style-type: none"> US (26,1) China (20,8%) Japan (9,8%) Other Asia, nes (5,0%) Korea (4,4%) 	<ul style="list-style-type: none"> MCP (operates in China, UK based) GEO Gallium S.A. Anascot Pty. Ltd Filtronic plc 	<ul style="list-style-type: none"> MCP refinery in Shenzhen Guangdong Province China, Stade, recovery plant Germany Refinery in Newton Aycliffe

End Using Industry	Demand (%)*
Electronics	98%
Optoelectronics	22%

*These figures are based on data from the United States

Sources:

- UN Comtrade HS 02 Beryllium, chromium, germanium, vanadium, gallium, hafnium, indium, niobium (columbium), rhenium and thallium, and articles of these metals, including waste and scrap.
- Basel Action Network; “Exporting Harm: The high-tech trashing of Asia”, 25-02-2002 Annex 1: Composition of a Personal Desktop Computer based on a typical desktop computer, weighing ~70lbs
- <http://en.wikipedia.org/wiki/Gallium>

GOLD

Gold is one of the most highly sought after precious metals in the world. The metals occurs as grains in rock, in veins and in deposits. It is often found in combination with silver. It is a very soft and malleable metal. Up to 99% of the metal can be recycled from electronic products.

Top Importing Countries	Top Exporting Countries	Selected Companies	Selected mines and smelters
<ul style="list-style-type: none"> • US (26,1) • China (20,8%) • Japan (9,8%) • Other Asia, nes (5,0%) • Korea (4,4%) 	<ul style="list-style-type: none"> • South Africa (29,9%) • India (20,8%) • Kazakhstan (14,1%) • Turkey (12,8%) • Pakistan (4,6%) 	<ul style="list-style-type: none"> • Barrick gold • AngloGold Ashanti • Newmont Mining • Gold Fields 	<ul style="list-style-type: none"> • Carlin Mines (USA, Nevada) • Yanacocha (Peru) • Goldstrike (USA, Nevada) • Driefontein (South Africa) • Kloof (South Africa) • Grasberg (Indonesia) • Muruntau (Uzbekistan)

End Using Industry	Demand (%)*
Jewellery	79%
Electronics	10%

*These figures are based on data from the United States

Issues Related to Gold Mining

- Barrick Gold's operations have harmful environmental and human rights effects on local communities.
- Norway ejected mining giant Rio Tinto from its pension portfolio; The Council on Ethics has concluded that Rio Tinto is directly involved in the severe environmental damage caused by a gold mining operation, through its participation in the Grasberg mine in Indonesia.
- Right's Action acclaims that Goldcorp Incs has predetermined it's Human Rights Impact Assessment to proceed in Guatemala.
- AngloGold union workers protests after death of colleague in TauTona mine in South Africa .
- Miners of Lepanto Consolidated Mining Company in the Philippines protested against a new policy of reduced working days, in which they have to work in a work rotation scheme.
- Child labour in African gold mines.

Sources:

- UN Comtrade HS 02 Gold (incl. gold plated with platinum), in unwrought forms (excl. powder)
- Basel Action Network; "Exporting Harm: The high-tech trashing of Asia", 25-02-2002 Annex 1: Composition of a Personal Desktop Computer based on a typical desktop computer, weighing ~70lbs
- <http://en.wikipedia.org/wiki/Gold>
- A Corp Watch Report, "Barrick's dirty secrets. Communities world wide respond to gold mining activities" may 2007, <http://www.foei.org/en/publications/pdfs/Barrick_final_sml.pdf> 16-12-2008
- Terry Macalister, "Ethical business: Norway ejects mining giant Rio from its pension portfolio" 09-09-2008 < <http://www.guardian.co.uk/business/2008/sep/09/riotinto.ethicalbusiness>> 16-12-2008
- Grahame Rusell, "Goldcorp Inc's Pre-determined Human Rights Impact Assessment to proceed in Guatemala", Rights Action Canada, 30 October 2008, < <http://www.business-humanrights.org/Links/Repository/773995>> 16-12-2008

- Reuters, "S.African union to boycott AngloGold mine Thursday", 08-10-2008
<<http://www.reuters.com/article/marketsNews/idUSL818124420081008>> 16-12-2008
- Cye Reyes, "Miners protest work rotation scheme", Barangay RP, 18-11-2008
<<http://barangayrp.wordpress.com/2008/11/18/>> 16-12-2008

INDIUM

Indium is mostly sourced through zinc production, as a by-product generated during the refining process. Most of the metal in the world's crust is found in combination with zinc. It also occurs in combination with lead, tin, copper and iron. Around 60% of Indium can be recycled from electronic products. The capacity to recycle Indium is larger in Japan than it is in the United States, where such capacity is very limited.

Top Importing Countries	Top Exporting Countries	Selected Companies	Selected mines and smelters
<ul style="list-style-type: none"> Japan (28,6%) US (17,0%) Korea (7,4%) Germany (7,3%) China (6,1%) 	<ul style="list-style-type: none"> Australia (33,1%) Brazil (28,2%) India (13,8%) Canada (5,0%) Switzerland (4,1%) 	<ul style="list-style-type: none"> Indium Corporation Falconbridge Ltd. Teck Cominco Geodex Minerals Ltd. Liuzhou China Tin Group Hechi Jinhe Mining and Smelting Co. Huludao Zinc Industry Corp. Ltd. Toho Zinc. Co Korea Zinc Co. 	<ul style="list-style-type: none"> Kidd Creek Refinery (Canada) Hechi (mine) (China) Annaka Zinc Smelter (Japan) Onsan Refinery (Korea)

End Using Industry	Demand (%)*
Electronics	78%
Monitors	33%
TVs	24%
Laptops	15%
Mobile phones	6%
Other	22%

*These figures are based on data from the United States

Issues Related to Indium Mining

- Xinhua News Agency reported 136 villagers in Hechi city, Guangxi province, China, were found poisoned with excessive amounts of arsenic in their urine during medical tests after drinking water contaminated with industrial wastes from a lead smelter.

Sources:

- UN Comtrade HS 02 Beryllium, chromium, germanium, vanadium, gallium, hafnium, indium, niobium (columbium), rhenium and thallium, and articles of these metals, including waste and scrap.
- Basel Action Network; "Exporting Harm: The high-tech trashing of Asia", 25-02-2002 Annex 1: Composition of a Personal Desktop Computer based on a typical desktop computer, weighing ~70lbs
- <http://en.wikipedia.org/wiki/Indium>
- CBI China, "Lead and Zinc production in Hechi City, Guangxi Province affected by environmental pollution accident" 24-10-2008, <<http://english.cbichina.com/news/1724912,4,0,0,0.htm>> 16-12-2008

IRON

Iron, and iron-nickel alloys constitute approximately 35% of the Earth's crust, and is the world's most abundant metal. Most of the iron in the crust is found combined with oxygen as iron oxide minerals such as hematite and magnetite. Around 80% of the iron in electronic products can be retrieved through recycling.

Top Importing Countries	Top Exporting Countries	Selected Companies	Selected mines and smelters
China (47,5%) Japan (14,2%) Germany (5,5%) Korea (4,7%) Italy (2,4%)	Australia (33,1%) Brazil (28,2%) India (13,8%) Canada (5,0%) Switzerland (4,1%)	Companhia Vale do Rio Doce Rio Tinto PLC BHP Billiton Group State of India Anglo American PLC	Hamersley (Australia) N4W-N (Carajas) (Brazil) N5 (Carajas) (Brazil) Yandi (Australia) MT Newman (Australia) Robe River (Australia) Fabrica Nova (Brazil) Conceição (Brazil) Area C (Australia) Alegria (Brazil)

End Using Industry	Demand (%)*
Warehouses and steel service centres	19%
Construction	16%
Transportation	13%
Cans and containers	3%
Other	49%

*These figures are based on data from the United States

Issues Related to Iron Mining

- Child labour reported in iron mine in Karnataka, India.
- Enslaved workers are reported to make charcoal, which is an ingredient used to make basic steel in Tucuruí Brazil.

Sources:

- UN Comtrade HS 02 Iron Unwrought
- Shantha Sinha, "Breaking the backs of India's children", Mines and Communities, 16-05-2005 <<http://www.minesandcommunities.org/article.php?a=1325>> 16-12-2008
- Michael Smith and David Voreacos, "Enslaved workers make charcoal used to make basic steel ingredient", The Seattle Times, 21-01-2007 http://seattletimes.nwsourc.com/cgi-bin/PrintStory.pl?document_id=2003534098&zsection_id=2002119995&slug=slavery21&date=20070121

MANGANESE

Large land based resources of manganese exists, but these are irregularly distributed. Manganese currently cannot be recycled.

Top Importing Countries	Top Exporting Countries	Selected Companies	Selected mines and smelters
<ul style="list-style-type: none"> China (48,3%) Japan (11,1%) Norway (7,0%) Korea (4,5%) France (3,8%) 	<ul style="list-style-type: none"> Australia (36,2%) South Africa (26,7%) Gabon (12,4%) Brazil (9,8%) Kazakhstan (4,3%) 	<ul style="list-style-type: none"> Joint Venture between BHP Billiton and Anglo American Plc Companhia Vale do Rio Doce Privat-Holding (Kolomoyskiy) Group Eramet Group 	<ul style="list-style-type: none"> Gemco (Australia) Mamatwan – Wessel (South Africa) Moanda (Gabon) Azul Mine (Brazil) Molango (Mexico) Urucum Mine (Brazil)

End Using Industry	Demand (%)*
Steel	85%
Other	15%

*These figures are based on data from the United States

Issues Related to Manganese Mining

- Workers exposed to poisonous fumes in Assmang manganese plant in Cato Ridge in Durban, South Africa.

Sources:

- UN Comtrade HS 02 Manganese ores and concentrates
- Basel Action Network; “Exporting Harm:The high-tech trashing of Asia”, 25-02-2002 Annex 1: Composition of a Personal Desktop Computerbased on a typical desktop computer, weighing ~70lbs
- <http://en.wikipedia.org/wiki/Manganese>
- Edwin Tshivhidzo, “Probe into workers' exposure to poisonous fumes”, Buanews, 28-01-2008 < <http://www.buanews.gov.za/view.php?ID=08012811451004&coll=buanew08>> 16-12-2008

MOLYBDENUM

Molybdenum is mined as the principal ore Molybdenite, and is also recovered as a by-product of copper and tungsten mining. The process of extracting molybdenum from molybdenite involves a roasting process with temperatures as high as 700 degrees Celcius and a consequent oxidation process.

Top Importing Countries	Top Exporting Countries	Selected Companies	Selected mines and smelters
<ul style="list-style-type: none"> • Japan (17,2%) • Belgium (12,5%) • Netherlands (12,3%) • China (8,7%) • US (6,7%) 	<ul style="list-style-type: none"> • China (30,3%) • US (16,0%) • China 11,1% • Peru (11,6%) • Netherlands (9,3%) 	<ul style="list-style-type: none"> • Freeport McMoran Copper & Gold • Codelco • Grupo Mexico • Rio Tinto • China Moly • Jinduicheng • Antofagasta Plc • Thompson Creek Metals Company Inc. • Antamina S.A. 	<ul style="list-style-type: none"> • Chuquicamata (Chile) • Henderson (USA) • Bingham Canyon (USA)

End Using Industry	Demand (%)*
Steel	81%
Other	19%

*These figures are based on data from the United States

Sources:

- <http://en.wikipedia.org/wiki/Molybdenum>
- UN Comtrade HS 02 Molybdenum Ores and concentrates

NICKEL

The bulk of the nickel mined comes from two types of ore deposits. The first are laterites where the principal ore minerals are nickeliferous limonite and garnierite (a hydrous nickel silicate). The second are magmatic sulfide deposits where the principal ore mineral is pentlandite. 80% of nickel present in electronic products can be recycled.

Top Importing Countries	Top Exporting Countries	Selected Companies	Selected mines and smelters
<ul style="list-style-type: none"> China (34,9%) Finland (23,7%) Japan (18,5%) Canada (10,9%) South Africa (9,1%) 	<ul style="list-style-type: none"> Australia (42,8%) New Calendonia (15,1%) Zimbabwe (11,9%) South Africa (7,5%) Philippines (7,2%) 	<ul style="list-style-type: none"> Norilsk Nickel Inco BHP Billiton Group Eramet Group Falconbridge 	<ul style="list-style-type: none"> Polar Division - Taimyr Peninsula (Russia) Talvivaara (Finland) Goro-Tiebaghi (New Caledonia) Mt Keith (Australia)

End Using Industry	Demand (%)*
Steel	60%
Other	40%

*These figures are based on data from the United States

Issues Related to Nickel Mining:

- Amcor and local authorities are accused of bribing indigenous people in The Philippines in favour of a nickel mining project.
- The Diocese of Butuan in The Philippines accused mining companies of destroying the environment by their extensive mining activities.

Sources:

- UN Comtrade HS 02 Nickel Ores and concentrates.
- Basel Action Network; "Exporting Harm: The high-tech trashing of Asia", 25-02-2002 Annex 1: Composition of a Personal Desktop Computer based on a typical desktop computer, weighing ~70lbs.
- BBC News, "'Bribery' secured Philippine mine", 23-10-2008
<<http://news.bbc.co.uk/1/hi/world/asia-pacific/7684860.stm>> 16-12-2008.
- Kimberly Jane T. Tan, "Bishop says mining firms destroyed Agusan's environment" GMANews, 11-08-2008 <http://www.gmanews.tv/story/132293/Bishop-says-mining-firms-destroyed-Agusans-environment> 16-12-2008.

PLATINUM GROUP METALS

The Platinum Group Metals (PGMs), which include Platinum, Palladium and a number of other metals, are some of the most valuable elements in the world. The production of Platinum Group Metals (PGMs) occurs in a very limited number of countries. The large majority of raw materials are sourced from South Africa and Russia, where large reserves of PGMs are known, and a blooming industry has developed that deals with the prospecting, exploration and extraction of these metals. All PGMs are easily recyclable, with recycling rates ranging from 80%-95%.

Top Importing Countries	Top Exporting Countries	Selected Companies	Selected mines and smelters
Platinum • US (21,4%) • Japan (19,1%) Palladium • US (25,8%) • Switzerland (18,6%) Ruthenium • Japan (28,6%) • US (17,0%) Rhodium • US (34,5%) • Japan (23,0%)	Platinum • South Africa (25,5%) • Switzerland (17,2%) Palladium • US (19,7%) • UK (18,0%) Ruthenium • US (26,1) • China (20,8%) Rhodium • South Africa (34,7%) • UK (18,5%)	• Norilsk Nickel • Anglo Platinum • Impala Platinum • Lonmin Plc • Stillwater Mining Co. • Aquarius Platinum • Northam Platinum Ltd	• Norilsk (Russia) • Rustenburg (South Africa) • Amandelbult section (South Africa) • Potgietersrust (South Africa) • Marikana - Lonmin (South Africa) • Stillwater Mine (USA)

End Using Industry	Platinum demand (%)	Palladium demand (%)	Rhodium Demand (%)
Automotive	57%	51%	87%
Jewellery	9%	4%	-
Electronics	3%	14%	3%
Dental	1%	13%	-
Petrochemical	4%	5%	3%

Issues Related to PGM mining;

- Heavy pollution of the smelting operations in Norilsk, Russia, significantly lowers life expectancy, and kills all trees in a 30km radius.
- Local communities forced off their lands around Anglo Platinum operations in South Africa.
- Use of untrained contract labourers for dangerous tasks.
- Ground water contamination in South Africa.

Sources:

- UN Comtrade HS 02, Palladium Unwrought; UN Comtrade HS 02, Platinum Unwrought; UN Comtrade HS 02 Rhodium in Unwrought/Powder form; UNComtrade HS 02 Iridium, Osmium, Ruthenium Unwrought or in powder form
- Basel Action Network; "Exporting Harm: The high-tech trashing of Asia", 25-02-2002 Annex 1: Composition of a Personal Desktop Computer based on a typical desktop computer, weighing ~70lbs

- T. Steinweg, “A Sputtering Process; An Overview of the Platinum Group Metals Supply Chain”, SOMO, November 2008.
- T Steinweg & E. de Haan, “Capacitating Electronics; The corrosive effects of platinum and palladium mining on labour rights and communities”, makeITfair November 2007.

RARE EARTHS

Rare earth metals are a group of 17 elements that, despite their name, are relatively abundant. China is by far the largest producer of rare earth metals, accounting for approximately 95% of global production. South Africa, India and Brazil also traditionally produce significant quantities. Rare earths currently cannot be recycled.

Top Importing Countries	Top Exporting Countries	Selected Companies	Selected mines and smelters
<ul style="list-style-type: none"> • US (16,3%) • Germany (7,9%) • China (6,7%) • UK (5,0%) • Japan (4,9%) 	<ul style="list-style-type: none"> • Germany (10,1%) • US (9,2%) • China (8,3%) • Japan (5,9%) • France (4,4%) 	<ul style="list-style-type: none"> • Lynas Corporation Limited • Unocal Corp 	<ul style="list-style-type: none"> • Molycorp (United States) • Haunou mine (China)

End Using Industry	Demand (%)*
Glass and ceramics	34%
Automobile	30%
Electronics	14%
Petroleum refining	11%
Ceramics	3%
Pharmaceutical	8%

*These figures are based on data from the United States

Sources:

- UN Comtrade HS 02 Rare Earth Metals
- Basel Action Network; “Exporting Harm: The high-tech trashing of Asia”, 25-02-2002 Annex 1: Composition of a Personal Desktop Computer based on a typical desktop computer, weighing ~70lbs
- United States Geological Survey, Rare Earth Commodity Summary, http://minerals.usgs.gov/minerals/pubs/commodity/rare_earths/mcs-2009-raree.pdf (17-02-09).

SILICON

Silicon makes up 25% of the earth’s crust, making it the second most abundant element in the crust (after oxygen). Silicon is usually found in the form of silicon oxide, or quartz, but also in the form of silica minerals. Currently, silicon cannot be recycled from electronic products.

Top Importing Countries	Top Exporting Countries
Japan (18,9%) Germany (16,5%) US (14,9%) Italy (5,0%) Netherlands (4,9%)	China (40,5%) Brazil (16,6%) Norway (15,2%) South Africa (4,2%) Canada (4,2%)

End Using Industry	Demand (%)
Steel	N/A
Chemical	N/A
Electronics	N/A

Sources:

- UN Comtrade HS 02 Silicon, cont. by wt. not <99.99% of silicon
- <http://en.wikipedia.org/wiki/Silicon>
- United States Geological Survey, Silicon Commodity Summary, <http://minerals.usgs.gov/minerals/pubs/commodity/silicon/mcs-2009-simet.pdf> (17-02-09).

SILVER

Silver can be found in its pure form, alloyed with gold, and in combination with sulphur, arsenic, antimony and chlorine. 98% of silver in electronic products can be recycled.

Top Importing Countries	Top Exporting Countries	Selected Companies	Selected mines and smelters
<ul style="list-style-type: none"> • US (18,6%) • Hong Kong (12,8%) • UK (12,4%) • Germany (7,2 %) • India (7,1%) 	<ul style="list-style-type: none"> • China (15,4%) • Mexico (11,5%) • Germany (9,6%) • Hong Kong (7,2%) • US (6,9%) 	<ul style="list-style-type: none"> • BHP Billiton • Industrias Penoles • KGHM Polska Miedz • Volcan Compania Minera • Kazakhmys 	<ul style="list-style-type: none"> • Cannington (Australia) • Proano/Fresnillo (Mexico) • Dukat (Russia) • Uchucchacua (Peru) • Greens Creek Mine (USA)

End Using Industry	Demand (%)
Coins	N/A
Jewellery	N/A
Automotive	N/A
Medical	N/A
Electronics	N/A

Issues:

- Violations of indigenous rights and environmental pollution of an Xstrata mine in Australia
- Environmental and human rights abuses related to mining of silver and other metals in the Philippines
- National strike of miners in Peru over lack of pensions and profit sharing schemes.

Sources:

- UNComtrade HS 02 Silver (incl. silver plated with gold/platinum), unwrought)
- Basel Action Network; "Exporting Harm: The high-tech trashing of Asia", 25-02-2002 Annex 1: Composition of a Personal Desktop Computer based on a typical desktop computer, weighing ~70lbs
- Corpwatch, "Xstrata Dreaming: The Struggle of Aboriginal Australians against a Swiss Mining Giant", 16-02-09, <http://www.corpwatch.org/article.php?id=15297> (24-02-09).
- CAFOD website, "Bishops challenge mining companies", 17-10-07, <http://www.cafod.org.uk/key-issues/mining/bishops-challenge> (24-02-09).
- ICEM website, "Mining Strike Begins in Peru over Government Inaction on Pension, Profit-Sharing Issues", 30-06-08, <http://www.icem.org/en/73-Contract-and-Agency-Labour/2696-Mining-Strike-Begins-in-Peru-over-Government-Inaction-on-Pension-Profit-Sharing-Issues> (24-02-09).

STRONTIUM

Strontium is a silver-coloured metal that is highly chemically reactive. The metal turns yellow when exposed to air. Almost two thirds of the world's Strontium production occurs in China. The demand for strontium is expected to decrease, as its use in flat screen monitors is decreasing.

Top Importing Countries	Top Exporting Countries
Japan (21,0) Korea (16,9) Malaysia (13,2%) US (8,5%) Singapore (6,4%)	Germany (58,5%) Mexico (20,2%) China (14,8%) Korea (2,1%) Spain (1,4%)

End Using Industry	Demand (%)*
pyrotechnics and signals	30%
ferrite ceramic magnets	30%
master alloys	10%
pigments and fillers	10%
electrolytic production of zinc	10%
other	10%

*These figures are based on data from the United States

Issues:

- Factory pollution in China

Sources:

- UNComtrade HS 02 Strontium Carbonite
- <http://en.wikipedia.org/wiki/Strontium>
- United States Geological Survey, Strontium Commodity Summary, <http://minerals.usgs.gov/minerals/pubs/commodity/strontium/mcs-2009-stro.pdf> (17-02-09).
- L.M. Lovett, "Seeing Green – Standing up for farmers in Chongqing", 30-06-07, http://hrichina.org/public/PDFs/CRF.2.2007/CRF-2007-2_Farmers.pdf (24-02-09).

SULPHUR

Elemental sulfur can be found near hot springs and volcanic regions in many parts of the world. Indonesia, Chile and Japan are some of the largest producers of sulphur. Sulphur cannot be recycled.

Top Importing Countries	Top Exporting Countries	Selected Companies	Selected mines and smelters
<ul style="list-style-type: none"> China (39,6%) Marocco (13,0%) India (6,8%) Brazil (6,0%) Tunisia (5,8%) 	<ul style="list-style-type: none"> Canada (34,6%) Germany (9,0%) Russia (8,7%) Japan (6,0%) US (5,1%) 	<ul style="list-style-type: none"> Tengizchevroil LLP (Kazakhstan) Kuweit National Petroleum Co. Astrakhangazprom (Russia) 	<ul style="list-style-type: none"> Canada, Gas Plants in Alberta (US) Astrakhan gas processing plant Orenburg Gazprom (Russia)

End Using Industry	Demand (%)*
Agriculture	60%
Petroleum refining	25%
Metal mining	3%
Other	12%

*These figures are based on data from the United States

Sources:

- UN Comtrade HS 02 Sulfur of all kinds
- <http://en.wikipedia.org/wiki/Sulphur>
- United States Geological Survey, Sulphur Commodity Summary, <http://minerals.usgs.gov/minerals/pubs/commodity/sulfur/mcs-2009-sulfu.pdf> (17-02-09).

COLTAN

Coltan is short for columbite-tantalite, the ore from which tantalum and niobium are extracted. The two largest regions of production of coltan are Australia and the Democratic Republic of the Congo (DRC). The metal is also mined in Canada, Brazil and China. Coltan cannot be recycled.

Top Importing Countries	Top Exporting Countries	Selected Companies	Selected mines and smelters
<ul style="list-style-type: none"> Germany (30,3%) China (25,1%) US (17,0%) Thailand (12,8%) Hong Kong (5,1%) 	<ul style="list-style-type: none"> South Africa (33,1%) US (30,4%) Hong Kong (9,4%) Rwanda (7,4%) Germany (5,6%) 	<ul style="list-style-type: none"> Talison Minerals Pty Ltd, Parapanema S.A., Cabot Corp., China Minmetals Corp., Ethiopia Mineral Development Share Company, Metallurg Group, Noventa Limited, Mibra, TANCO, Artisanal 	<ul style="list-style-type: none"> Wodgina (Australia) Greenbushes (Australia) Pitinga (Brazil) Tanco (Canada) Yichun (China) Kenticha (Ethiopia) Nanping (China) Mibra (Brazil)

End Using Industry	Demand (%)*
Electronics	60%
Other	40%

*These figures are based on data from the United States

Issues:

- Income from coltan mining is used to fuel the civil war in the DRC.
- Miners are exploited by armed rebel groups in the DRC.

Sources:

- UNComtrade HS 02 Ores and Concentrates Total of: Niobium, Tantalum, Vandadium, Zirconium
- Basel Action Network; "Exporting Harm: The high-tech trashing of Asia", 25-02-2002 Annex 1: Composition of a Personal Desktop Computer based on a typical desktop computer, weighing ~70lbs
- <http://en.wikipedia.org/wiki/Tantalum>
- United States Geological Survey, Niobium (Columbium) and Tantalum Statistics and Information, <http://minerals.usgs.gov/minerals/pubs/commodity/niobium/> (17-02-09).
- The Observers website, "Coltan, the 'blood mineral' of Congo", 12-11-08, <http://observers.france24.com/en/content/20081112-coltan-blood-mineral-congo-mining-nkunda-rwanda> (24-02-09).

TIN

Tin is produced from the metal Cassiterite. Tin or cassiterite is mined in various regions in the world, including Bolivia, Indonesia, the Democratic Republic of the Congo, and Malaysia. Tin has a recycling rate of approximately 70%.

Top Importing Countries (of refined tin)	Top Exporting Countries (of refined tin)	Largest Producing Companies	Selected mines and smelters
<ul style="list-style-type: none"> USA (15.8%) Japan (14.5%) Germany (10.1%) South Korea (7.4%) Taiwan (6.0%) 	<ul style="list-style-type: none"> Indonesia (41.3%) Peru (17.5%) Malaysia (11.9%) Thailand (7.9%) Bolivia (4.9%) 	<ul style="list-style-type: none"> Yunnan Tin PT Timah Minsur Malaysia Smelting Corp Thaisarco 	<ul style="list-style-type: none"> San Rafael (Peru) Butterworth (Malaysia) Huanuni (Bolivia) Pitinga (Brazil) Mentok (Indonesia)

End Using Industry	Demand (%)*
Cans and containers	26%
Electronics	24%
Construction	11%
Transportation	11%
Other	28%

*These figures are based on data from the United States

Issues Related to Tin/Cassiterite Mining

- Armed rebel groups controlling the Bisie mine in eastern DRC
- Dangerous working conditions at the Bisie mine
- Environmental destruction due to tin mining on the Bangka and Belitung islands in Indonesia

Source:

- World Bureau of Metal Statistics database, figures provided by ITRI.
- Basel Action Network; "Exporting Harm: The high-tech trashing of Asia", 25-02-2002 Annex 1: Composition of a Personal Desktop Computer based on a typical desktop computer, weighing ~70lbs
- Global Witness, press release "Control of mines by warring parties threatens peace efforts in eastern Congo", 10-09-2008
<http://www.globalwitness.org/media_library_detail.php/663/en/control_of_mines> 16-12-2008
- Finnwatch, "Connecting Components, Dividing Communities: Tin production for consumer electronics in the DR Congo and Indonesia," makeITfair, December 2007

TITANIUM

Titanium is the seventh most abundant metal in the world, and is always found bonded to other elements. Large amounts of Titanium are produced in Australia, China and South Africa, among other countries. Titanium is well recyclable, with a rate of 80% for electronic products.

Top Importing Countries	Top Exporting Countries	Selected Companies
<ul style="list-style-type: none"> • US (19,0%) • Germany (11,1%) • Japan (8,6%) • Other Asia, nes (6,4%) • Belgium (6,2%) 	<ul style="list-style-type: none"> • South Africa (47,6%) • Australia (20,0%) • Belgium (8,7%) • India (7,3%) • Viet Nam (4,6%) 	<ul style="list-style-type: none"> • Iluka Resources • Rio Tinto • Exxaro Resources • BHP Billiton

End Using Industry	Demand (%)*
Paint and pigment	94%
Other	6%

*These figures are based on data from the United States

Issues Related to Titanium Mining

- Protests in Tamil Nadu, India, over Tata opening new titanium mine.
- Zunyi Titanium was responsible for the chlorine gas leak in Guizhou, China, that caused eye irritation, dizziness, vomiting and heart burn in 158 nearby residents.

Sources:

- UNComtrade HS 02 Titanium Ores and Concentrates
- Basel Action Network; "Exporting Harm: The high-tech trashing of Asia", 25-02-2002 Annex 1: Composition of a Personal Desktop Computer based on a typical desktop computer, weighing ~70lbs
- <http://en.wikipedia.org/wiki/Titanium>
- Nityanand Jayaraman, "Titanium or Water? Trouble brews in Southern India" Corp Watch, 24-10-2007 <<http://www.corpwatch.org/article.php?id=14768>> 16-12-2008
- Business and Human Rights "Zunyi Titanium responsible for chlorine gas leakage in Guizhou, China - 158 hospitalized" 13-09-2006 <http://www.business-humanrights.org/Links/Repository/314006/link_page_view> 16-12-2008
- United States Geological Survey, Titanium Mineral Concentrates Commodity Summary, <http://minerals.usgs.gov/minerals/pubs/commodity/titanium/mcs-2009-timin.pdf> (17-02-09).

TUNGSTEN

Tungsten, found as wolframite ore, is also known as wolfram. It has the highest melting point of all non-alloyed metals in the world. A large portion of tungsten is produced from wolframite that is mined in China and Russia. No data was found regarding the recycling rates of tungsten. Tungsten is often used to strengthen steel.

Top Importing Countries	Top Exporting Countries	Selected Companies
<ul style="list-style-type: none"> • China (40,9%) • US (28,6%) • Austria (19,7%) • Germany (3,2%) • Russia (3,1%) 	<ul style="list-style-type: none"> • Russia (28,9%) • Canada (24,3%) • Portugal (13,1%) • Bolivia (10,3%) • Rwanda (6,1%) 	<ul style="list-style-type: none"> • North American Tungsten Corporation

End Using Industry	Demand (%)*
Construction	50%
Other	50%

*These figures are based on data from the United States

Sources:

- UNComtrade HS 02 Tungsten Ores and Concentrates
- <http://en.wikipedia.org/wiki/Tungsten>
- United States Geological Survey, Tungsten Mineral Concentrates Commodity Summary, <http://minerals.usgs.gov/minerals/pubs/commodity/tungsten/mcs-2009-tungs.pdf> (17-02-09).

VANADIUM

Vanadium is not found in nature, but exists within 65 different metals. It is mostly extracted from vanadium-laden magnetite, mined in South Africa, Russia and China. Vanadium cannot be recycled from electronic products.

Top Importing Countries	Top Exporting Countries	Selected Companies
<ul style="list-style-type: none"> Germany (30,3%) China (25,1%) US (17,0%) Thailand (12,8%) Hong Kong (5,1%) 	<ul style="list-style-type: none"> South Africa (33,1%) US (30,4%) Hong Kong (9,4%) Rwanda (7,4%) Germany (5,6%) 	<ul style="list-style-type: none"> Highveld Steel and Vanadium Corp Ltd Denison Mines Corp.

End Using Industry	Demand (%)*
Steel production	92%
Catalysts	8%

*These figures are based on data from the United States

Sources:

- UNComtrade HS 02 Ores and Concentrates Total of: Niobium, Tantalum, Vanadium, Zirconium
- Basel Action Network; "Exporting Harm: The high-tech trashing of Asia", 25-02-2002 Annex 1: Composition of a Personal Desktop Computer based on a typical desktop computer, weighing ~70lbs
- <http://en.wikipedia.org/wiki/Vanadium>
- United States Geological Survey, Vanadium Mineral Concentrates Commodity Summary, <http://minerals.usgs.gov/minerals/pubs/commodity/vanadium/mcs-2009-vanad.pdf> (17-02-09).

ZINC

Zinc is the fourth most widely used metal in the world, after iron, copper and aluminium. Most of the mining of zinc occurs in Australia, Peru and China. 60% of zinc can be recycled from electronic products. The recycling of zinc amounts to 30% of the total global production.

Top Importing Countries	Top Exporting Countries	Selected Companies	Selected mines and smelters
<ul style="list-style-type: none"> • Korea (14,7%) • Spain (12,3%) • Japan (11,2%) • Belgium (11,0%) • China (8,8%) 	<ul style="list-style-type: none"> • Peru (21,2%) • Australia (20,7%) • US (12,8%) • Bolivia (6,4%) • Belgium (6,0%) 	<ul style="list-style-type: none"> • XStrata Plc • OZ Minerals • Teck Cominco Ltd • Glencore International AG • Hindustan Zinc 	<ul style="list-style-type: none"> • Century (Australia) • Rampura Agucha (India) • Red Dog (USA) • Iscaycruz (Peru) • Brunswick #12 Mine (Canada) • Greens Creek Mine (USA) • Mt. Isa (Australia) • Tara Mine (Ireland) • Lisheen (Ireland) • Antamina (Peru)

Issues Related to Zinc Mining

- A law suit has been settled by Zinc producer Teck Cominco Ltd for drinkwater pollution in Alaska, the suit was filed by Inupiat Eskimos.
- Macedonia's central town of Veles is suing the state for allowing 30 years of continuous pollution from the town's lead and zinc smelter that is situated right next to residential areas.

Sources:

- UNComtrade HS 02 Zinc Ores and Concentrates
- Basel Action Network; "Exporting Harm: The high-tech trashing of Asia", 25-02-2002 Annex 1: Composition of a Personal Desktop Computer based on a typical desktop computer, weighing ~70lbs
- <http://en.wikipedia.org/wiki/Zinc>
- United States Geological Survey, Zinc Mineral Concentrates Commodity Summary, <http://minerals.usgs.gov/minerals/pubs/commodity/zinc/mcs-2009-zinc.pdf> (17-02-09).
- Bloomberg website, "Teck Settles Alaskan Zinc Mine Lawsuit With Eskimo Villagers", 15-05-08, http://www.bloomberg.com/apps/news?pid=20601082&refer=canada&sid=aC_s5fFwGEAE (24-02-09).
- SETimes website, "Polluted Macedonian city to be rid of smelter", 01-05-09, http://www.setimes.com/cocoon/setimes/xhtml/en_GB/features/setimes/features/2008/05/01/feature-03 (24-02-09).

ZIRCONIUM

Zirconium is never found in nature as a native metal. The principal commercial source of zirconium is the zirconium silicate mineral, zircon

Top Importing Countries	Top Exporting Countries	Selected Companies
<ul style="list-style-type: none"> Germany (30,3%) China (25,1%) US (17,0%) Thailand (12,8%) Hong Kong (5,1%) 	<ul style="list-style-type: none"> Peru (21,2%) Australia (20,7%) US (12,8%) Bolivia (6,4%) Belgium (6,0%) 	<ul style="list-style-type: none"> Century Rampura Agucha Red Dog Iscaycruz Brunswick #12 Mine Greens Creek Mine Mt. Isa Tara Mine Lisheen Antamina

End Using Industry	Demand (%)
Ceramic	N/A
Chemical	N/A

Sources:

- UNComtrade HS 02 Ores and Concentrates Total of: Niobium, Tantalum, Vandadium, Zirconium
- United States Geological Survey, Zirconium Mineral Concentrates Commodity Summary, <http://minerals.usgs.gov/minerals/pubs/commodity/zirconium/mcs-2009-zirco.pdf> (17-02-09).