

### Babies and Bathwater: Supply and Demand in Export Markets

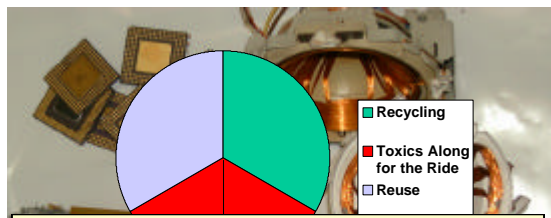
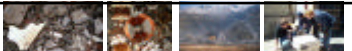


National Recycling Congress, 2003

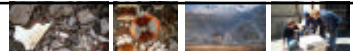


The big Metals picture: 2/3 Mining, 1/3 Recycling  
Repair and Reuse: USA's labor problem  
Abuse of Reuse: toxics along for the ride and other sleazy tricks.

**Overview:**  
Begin with impassioned description of status quo.  
Provide actual statistics on domestic and foreign economy of recycling electronics.  
Show that exporting for repair is good, and exporting scrap is a necessary evil.  
Reveal dirty laundry in my business, to STOP TAR, RAISE THE BAR.



FACT: if we export everything, we send 1/3 reusables, 1/3 recyclables, and 1/3 Toxics along for the ride.  
FACT: if we export nothing, we'll destroy reusables (and they cannot afford new); they mine to replace the recycled metals, and mining produces even more toxic harm than recycling.  
SOLUTION: Setting a Higher Standard. USA processing, limited exports (tested equipment, copper scrap), simple tests (like CRT Glass Test); market development to promote best practices; (funded) state processing contracts with restrictions and incentives; etc.



### World Copper Production: 2001

- |                                |                 |
|--------------------------------|-----------------|
| 1. Mining (concentrates)       | 13,570,000 tons |
| 2. Primary Smelter Recycling   | 1,234,000       |
| 3. Secondary Smelter Recycling | 802,000         |

*Fact: scrap exports to pacific rim manufacturing countries are more certain to occur than cocaine imports to the USA. The issues: TOXIC ALONG FOR THE RIDE (waste disguised as scrap) GRAY MARKET REPAIRS (products disguised as scrap)*

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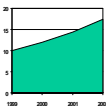
Labor cost is only part of the equation.  
Haiti is much closer, but does not import e-scrap

**Pro-Export Forces**

1. Demand for reuseables
2. Metal demand
3. Balance of Trade

**Anti-Domestic Forces**

1. Mining Subsidies
2. Labor cost (esp. repair)
3. Smelter age/environmental standards



**Giant Sucking Sound**  
Growth in Chinese demand for copper (ore and scrap): 20% per year 1999-2002

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**Other factors driving exports (and overseas mining)**

1. Electric and electronic apparatus "made in China"
2. Chinese "New Deal" scale infrastructure development
3. Asia #1 in per capita consumption of gold (the only material which the West does not consume most of)




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**Statistical comparison of importing strengths**

| Work in Progress:                      | Statistical Comparison of Factors Influencing E-Scrap Exports |       |          |       |       |        |       |        |         |            |
|--|---|-------|----------|-------|-------|--------|-------|--------|---------|------------|
|  | USA   | Spain | Malaysia | Korea | Chile | Columb | China | East E | Central | NonCentral |
| Demand Rates (positive revenue)        |   |       |          |       |       |        |       |        |         |            |
| Reuse of High Tech                     | 6   | 6     | 9        | 9     | 9     | 7      | 9     | 7      | 2       | 1          |
| Working 2ndary                         | 2   | 2     | 8        | 8     | 8     | 6      | 8     | 6      | 5       | 5          |
| Parts Salvage                          | 3   | 3     | 9        | 9     | 9     | 9      | 9     | 6      | 6       | 5          |
| Metals, Plastics                       | 3   | 5     | 1        | 6     | 3     | 9      | 5     | 1      | 1       | 1          |
| Toxics Along for the Ride              | 1   | 1     | 1        | 3     | 3     | 6      | 6     | 6      | 6       | 6          |
| Mining production                      | 6   | 1     | 0        | 3     | 4     | 3      | 4     | 6      | 0       | 0          |
| Population                             |   |       |          |       |       |        |       |        |         |            |
| Labor Costs                            | 2   | 2     | 4        | 6     | 6     | 9      | 7     | 9      | 9       | 9          |
| Trained Technicians                    | 5   | 5     | 9        | 6     | 6     | 7      | 6     | 1      | 0       | 0          |
| Environmental Standards                | 2   | 2     | 1        | 5     | 6     | 8      | 8     | 9      | 9       | 9          |
| Secondary Marketplace Demand           | 2   | 2     | 8        | 8     | 6     | 9      | 8     | 5      | 5       | 5          |
| Raw Material Demand                    | 5   | 9     | 7        | 8     | 2     | 9      | 5     | 1      | 0       | 0          |
| Currency Valuation/Surplus based on \$ | 5   | 6     | 6        | 6     | 6     | 7      | 2     | 2      | 1       | 1          |
| Corruption (risk of refusal)           | 2   | 2     | 1        | 5     | 8     | 7      | 8     | 8      | 8       | 8          |
| Corruption (risk of nonpay)            | 7   | 7     | 8        | 5     | 4     | 4      | 2     | 2      | 2       | 2          |
| Balance of Trade (transport)           | 5   | 3     | 7        | 7     | 5     | 8      | 4     | 1      | 3       | 3          |

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**Statistical comparison of importing strengths, continued**

|                                   | USA   | Belgium    | Singapore  | Korea      | Columb     | China      | Lithuan    | Ghana      | Haiti      |
|-----------------------------------|---|------------|------------|------------|------------|------------|------------|------------|------------|
| Cost of Dumping                   | 2   | 2          | 4          | 6          | 6          | 9          | 7          | 9          | 9          |
| Black Market advantages           | 2   | 2          | 3          | 8          | 9          | 8          | 8          | 4          | 4          |
| Material Shortages                | 1   | 1          | 7          | 7          | 4          | 8          | 5          | 1          | 1          |
| Mining Alternative                | 2   | 9          | 9          | 6          | 3          | 8          | 3          | 2          | 9          |
| Customs Duties, scrap             | 5   | 5          | 5          | 5          | 4          | 3          | 3          | 3          | 3          |
| Customs Duties, reuse             | 5   | 5          | 5          | 5          | 3          | 1          | 2          | 9          | 9          |
| <b>Equal Weighted Average</b>     | <b>3.5</b>  | <b>3.8</b> | <b>5.3</b> | <b>6.2</b> | <b>5.3</b> | <b>7.0</b> | <b>5.5</b> | <b>4.4</b> | <b>4.3</b> |
| <b>5x Labor Weighted Average</b>  | <b>3.2</b>  | <b>3.5</b> | <b>5.1</b> | <b>6.2</b> | <b>5.4</b> | <b>7.3</b> | <b>5.8</b> | <b>5.2</b> | <b>5.0</b> |
| <b>20x Labor Weighted Average</b> | <b>2.8</b>  | <b>3.0</b> | <b>4.7</b> | <b>6.1</b> | <b>5.6</b> | <b>8.0</b> | <b>6.2</b> | <b>6.6</b> | <b>6.5</b> |
| Predicted Actual Score            | 3   | 6          | 8          | 8          | 5          | 8          | 5          | 1          | 1          |
| Per Capita PAS                    | 2   | 9          | 9          | 6          | 6          | 3          | 6          | 8          | 5          |
| Other Countries                   | Canada, Indonesia, India, Pakistan, Chile, Mexico, Canada, Philippines, Aus |            |            |            |            |            |            |            |            |

**NO QUALIFIED "ONE STOP SHOPPING" END-POINT**

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Why is there insufficient Demand for e-scrap's copper, lead, silver, nickel, aluminum etc. [in the USA?](#)

- labor cost (repair and recycling)
- subsidized extraction
- environmental standards
- older smelting equipment
- hundreds of millions in accrued EPA fines, Superfund sites

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### Electronics Recycling Employment

| Category  | Jobs Created (in Mass.) |
|-----------|-------------------------|
| Landfill  | ~10                     |
| Recycling | ~150                    |
| Repair    | ~1500                   |

Employment as an indicator of labor costs

Even in the USA, with lower repair/reuse rates, repair dwarfs recycling, mining, and disposal

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### Electronics Recycling Employment

| Category                         | Employment |
|----------------------------------|------------|
| Computer Repair (in Mass.)       | ~200,000   |
| TV Repair (in Mass.)             | ~500,000   |
| Metal Mining (Entire U.S.)       | ~5,500,000 |
| Electronics Repair (Entire U.S.) | ~5,500,000 |

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Repair and Reuse in Asia: a gigantic industry, perceived as a serious threat of "market cannibalization"

Singapore: 65% of all employment is in high tech parts and equipment trade. "R & O" (Repair and Overhaul) are tracked by Singapore Bureau of Labor statistics.

China: R&O industries so significant that HP pays China EPA \$6M to arrest printer and cartridge refurbishers. Any scrap is allowed in the country so long as it is smashed or shredded.

Hiding high tech goods - the primary use of electronic scrap?

USA: "Jazz Camera" case headed to US Supreme Court

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### US Subsidizes mining to meet demand

- Estimated Cost of metal mining Superfund cleanups - **\$10B**
- Number of **15 largest** EPA Superfund Sites which are copper/lead/gold mines: **14**
- % of **all** toxic emissions from **all** US Industries attributed to hard-rock mining: **47%**
- Percentage of gold, copper, silver, lead ores production from federal lands: **95%**

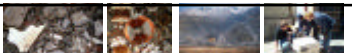
**STEWARDSHIP FACT:** More mercury is released into the environment by gold mining than by mercury mining and disposal, combined



### Mining Supply - a barrier to Recycling Demand

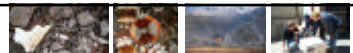
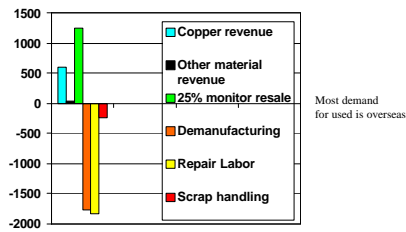
- Year USA's mineral lease policy was established: **1872**
- Net Annual Federal Revenue/Royalties from gold, copper, silver, lead, sold from federal lands (2003 budget): **\$0**
- Federal Revenue from land-leases: **\$5/acre**
- Employees administering 2003 mineral land leases: **339**
- Percentage of gold, copper, silver, lead ores production from federal lands: **95%**
- Net Annual Federal Revenue/Royalties from gold, copper, silver, lead, sold from federal lands (2003 budget): **\$0**

**Bush's head of BLM - Lynn Scarlett**



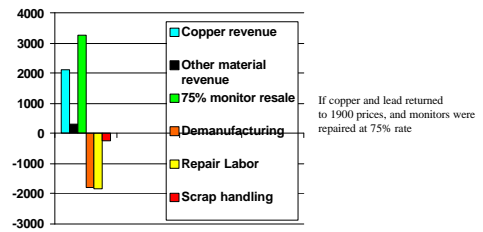
### Overall USA Monitor Management

\$ spent and earned per 1000 monitors

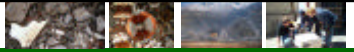


### Possible USA Monitor Management

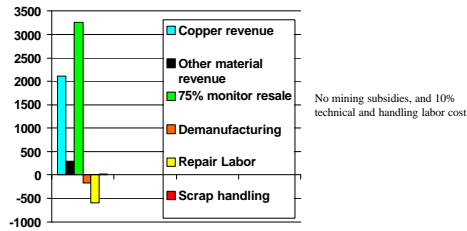
\$ spent and earned per 1000 monitors



Countries with high reuse and no mining subsidies have the advantage



### Overseas Monitor Management \$ spent and earned per 1000 monitors



Countries with high reuse, no mining subsidies, and low wages are the winners



Therefore, BAN is correct that Labor cost is a factor. Any activity which creates lots of jobs is an activity done more cheaply elsewhere.

However, it is not the only factor. Otherwise we would see electronics recycling in Haiti and Africa.

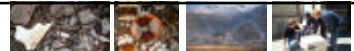
Recycling & repair remain superior to overseas mining. But our industry MUST CONTROL toxics along for the ride and other abuses.



### London Convention or Basel Convention?

Overseas mining is worse than overseas recycling

- Decline of Congo's lowland gorillas since mining of Coltan for cell phones began 10 years ago: **-50%**
- Average tons of cyanide and arsenic-contaminated mine-tailings dumped into the OK Tedi River in the Papua New Guinea rain forest 1990-2000: **80,000 tons per day**
- Number of years of known world copper reserves (1970 rate of consumption): **less than 100**
- Change in World copper consumption from 1970-1990: **+50%**
- US plan for majority copper supply by 2100: **ocean bed mining**



Bottom line: China has no mining subsidies, and gets the copper any way it can – in raw ore, refined or, or scrap.

When it comes to mineral policy, China is the free market!

AMERICA'S MOST HIDEOUS EXPORT?  
Since 1985, the 1872 General Mining Act has been copied and enacted in Indonesia, Philippines, and Chile



If we should not ban exports, how can we improve them?

Dirty secrets: American TAR

Minimal USA sorting or processing, send everything together in one container

1. Stick illegal, high MTOB (super) computer equipment in front of container, cover it with TAR scrap (Pakistan, Korea), falsify shipping documents
2. Sell working/repairable monitors, throw broken CRTs Along for the Ride
3. Sell scrap copper, scrap gold, with TAR
4. (Anecdotaly) Take crap, mislabel it, and stick it to them for a one-time clean-out



What NRC members can help do to reverse the ratio of recycling to mining in 12 years:

- o seek a "Market Correction" in 1872 mining prices, or at least stop it from proliferating (Philippines, Indonesia, Chile have passed "GMA" based on USA 1872 law).
- o increase recycling supply despite costs
- o raise the standards for the recycling and "gray market" industries
- o Buy Recycled CRT content (Panasonic, Sharp and Sony)

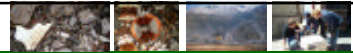


**STOP TAR - RAISE THE BAR**

Attack the highest and lowest value items in the export loads.

1. **CRT Glass Test** - no known market in Asia for screen burned, scratched or busted tubes. Legitimate USA recyclers must be able to show where the non-repairable glass goes.

Guidance document at [retroworks.com](http://retroworks.com), several other sites



**STOP TAR - RAISE THE BAR**

Attack the highest and lowest value items in the export loads.

2. **Printed Circuit Board (PCB) Gold Test** -

Nasty recycling (and nastier mining) practices. We do all PCBs domestically.

Stimulate domestic demand for Gold PCBs, CRT Glass



Gold mining releases more mercury into the environment than mercury production and disposal combined!!!



**STOP TAR - RAISE THE BAR**

Attack the highest and lowest value items in the export loads.

3. Truth in Exporting Test - Ask for shipping manifests (sensitive market info can be blocked out). Legitimate bill of lading shows make/model/voltage/COO/condition. DHS will enforce existing high tech export rules, customs declarations.

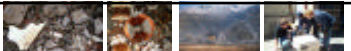
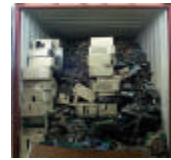
It's impossible to send 3 shipping containers worth \$400,000 in scrap. Watch out for Korea (a legal Basel Convention export), Pakistan and UAE.



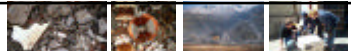
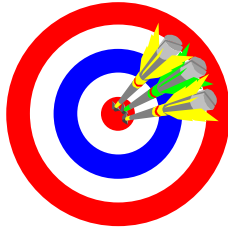
**Other Due Diligence**

- Get total # Tons Per Year
  - How many employees per ton?
  - How picky ? "Picky is good" for exports
  - If "for repair", is it wrapped, tested, sorted and manifested?

This container certainly has several hundred cords, power supplies, and hard drives which could be reused - but it's TAR, an abuse of reuse.



- [mineralpolicy.org](http://mineralpolicy.org)
- [mpi.org.au](http://mpi.org.au)
- [USGS.gov](http://USGS.gov)
- [moles.org](http://moles.org)
- [ban.org](http://ban.org)
- [copper.org](http://copper.org)
- [www.antigraymarket.org](http://www.antigraymarket.org) (a scary place)
- these and other links [www.retroworks.com](http://www.retroworks.com)



**Conclusion**

Metals industry is roughly 1/3 recycling, 2/3 mining. It won't go away.

If Asia is manufacturing our goods, we have an obligation to encourage copper and other recycling. I saw filthy restaurants in China, but would not outlaw food.

Our screwed up 1872 Mineral Policy is getting exported, which WorldWatch Report lists in top 5 world environmental issues. The London Convention is as important as the Basel Convention.

USA is the best at disposal, but the worst at repair & reuse. World Computer Exchange may be our best hope to bring our messages to the countries which are being mined to make our products.

Product Stewardship advocates - Beware the words of Vance Packard.

All recyclers should not be painted with the same brush. BAN's original report offended many US recyclers. We should applaud BAN for helping Raise the Bar. But 20% of "recyclers" are exporting 80% of mixed, TAR loads. Go find 'em.