

Taking stock: Mercury supply, demand & trade

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International mercury conference:

How to reduce mercury supply and demand

Brussels, 26-27 October 2006 – Centre de Conférences Albert Borschette

Scope of presentation

Slide 2

Overview of global:

- Mercury sources
- Mercury uses
- Mercury trade
- Mercury prices
- Other issues

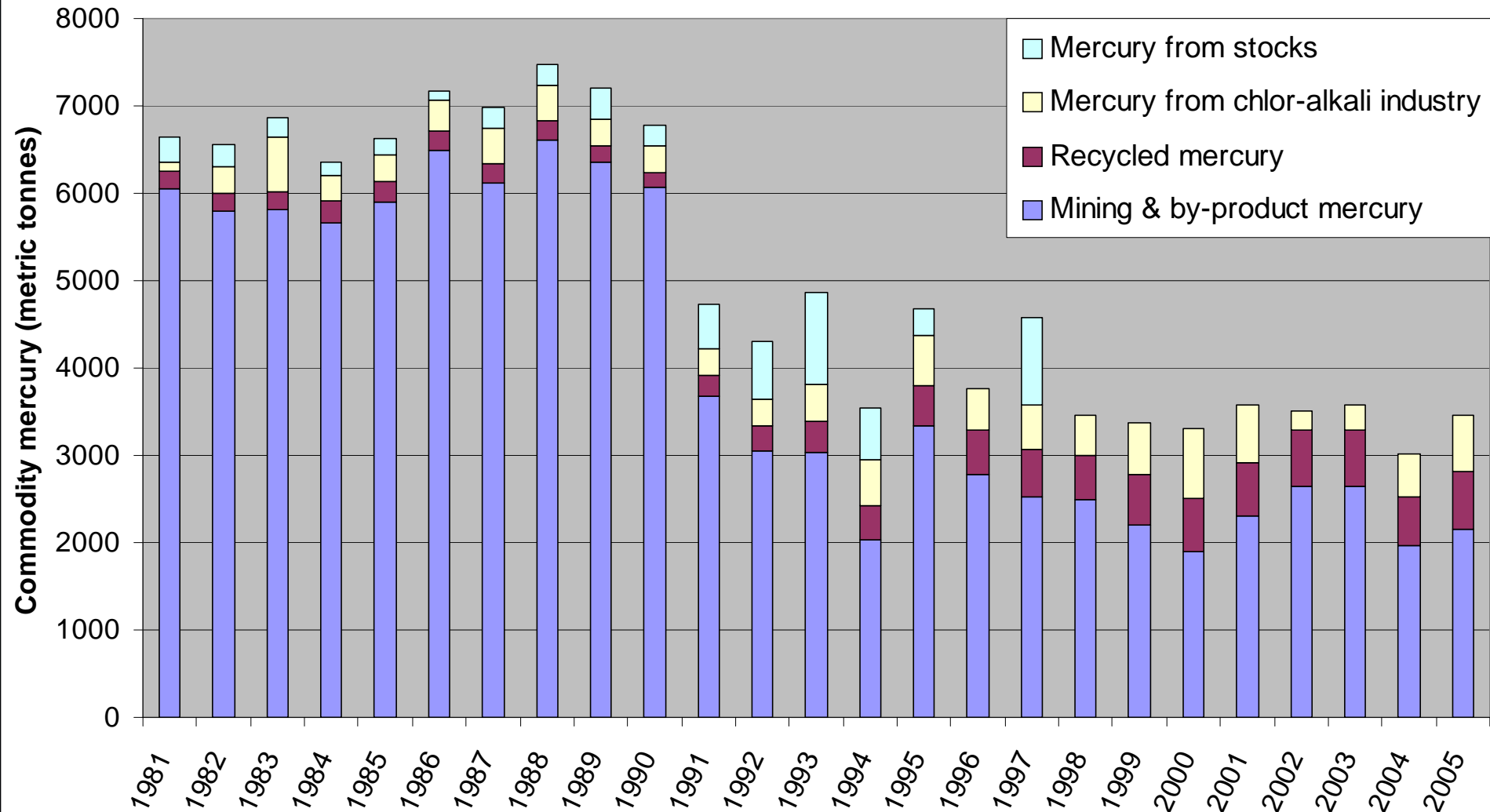
Sources – 2005

Slide 3

- **Primary mercury mining (1500-1700 tonnes)**
- **By-product mercury (300-500 tonnes)**
- **Recycled products, retorted wastes (600-800)**
- **Decommissioned chlor-alkali plants (500-700)**
- **Stocks, inventories - originally from mines, chlor-alkali, wastes, etc. (0-200)**

Global mercury supply 1981-2005

P. Maxson, "Mercury flows and safe storage of surplus mercury," for the Environment Directorate, European Commission, August 2006. See http://ec.europa.eu/environment/chemicals/mercury/pdf/hg_flows_safe_storage.pdf



Mercury uses

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Products containing Hg– p.1

- Anti-fouling agents
- Anti-tamper devices of pay-phones
- Barometers
- **Batteries**
- Bubblers/traps (mercury)
- Cathode-ray oscilloscopes
- Coulter Counters with manometers
- DC watt-hour meters
- Diffusion pumps
- Distillation salts
- Dropping Mercury Electrode (DME) technique for polarography and volt-ammeter
- Fan and air vent controls

Products containing Hg– p.2

Slide 6

- Fire alarms
- **Float switches** (in bilge pumps, chemical feed pumps, septic tanks, and sump pumps)
- **Fluorescent lights**
- Furnaces and heating systems
- G-Sensor security systems use mercury in some applications
- Heating and ventilation equipment
- **High-intensity discharge (HID) lamps**
- High voltage equipment
- Hot water heaters
- Household appliances

Products containing Hg– p.3

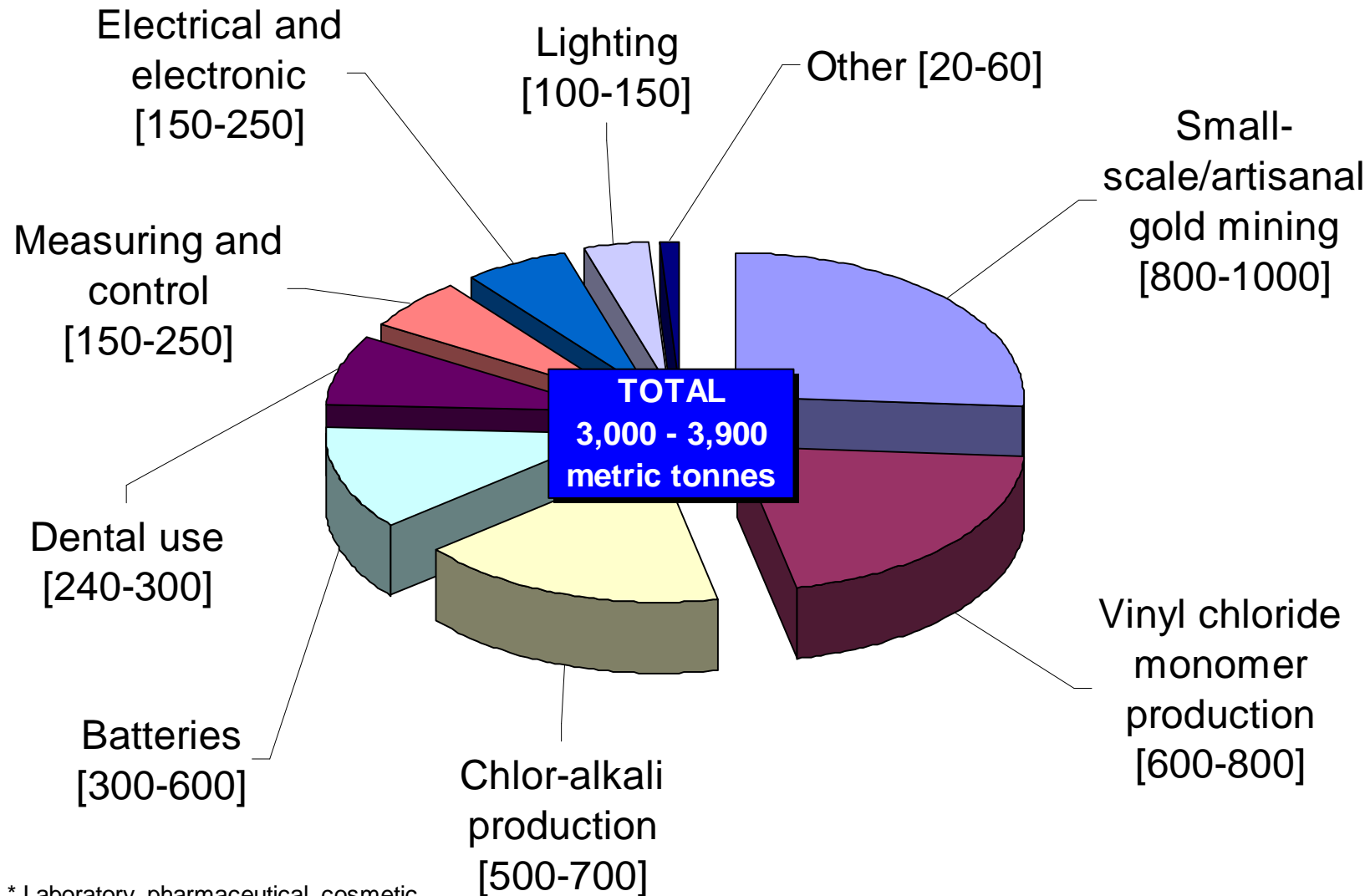
- **Manometers**
- Natural gas powered equipment
- Otoscopes
- Pool alarms
- pH meters
- Plunger/displacement relays (see above chart)
- Products containing preservatives (see chemical sheet)
- Rubber flooring
- Security alarms (e.g. automotive, building and computer)

Products containing Hg– p.4

- Sequential Multiple Analyzers
- Silent light switches
- Steam recorders in boiler panels
- Switching equipment for telecommunications
- Temperature control or environmental testing equipment
- **Thermometers**
- **Thermostats**
- Thermostat probes
- **Tilt switches**

Major global mercury uses – 2005

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* Laboratory, pharmaceutical, cosmetic, cultural/traditional uses, etc.

October 2006

Concerns about the largest uses

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- **Small-scale gold mining**
 - A large problem, but our understanding of the sector, and ability to address it, is improving
- **VCM (China & Russia)**
 - Large and growing user (China)
- **Chlor-alkali**
 - Relatively small number of exceptionally polluting plants
 - Larger number of plants that have received little attention
 - Industry (WCC) outreach, US partnerships, UNEP mercury program, etc.
- **Batteries**
 - Mostly East Asia and South Asia sources and uses, decreasing
 - Responding to international pressure, but regional use may persist

Mercury trade summaries available on UNEP

<http://www.chem.unep.ch/mercury/COMTRADE-data-per-country.htm>

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ALBANIA

Elemental mercury imports and exports

Data source: UN DESA/ESD/UNSD - Comtrade statistics - downloaded 11Apr2006

Tarif system: SITC rev.2

Tarif code: 52216

Filter: Trade value = \$US 0

Comments:

| Period | Exporting partner countries | | Albania | | | | Importing partner countries | | | |
|--------|-----------------------------|------------------------------------|---|------------|--|------------|--------------------------------------|------------|--------------|-------------------|
| | | Reported exports to target country | Reported imports from partner country (on left) | | Reported exports to partner country (on right) | | Reported imports from target country | | | |
| Year | Country name | Kg mercury | Value (\$US) | Kg mercury | Value (\$US) | Kg mercury | Value (\$US) | Kg mercury | Value (\$US) | Country name |
| 1995 | Germany | 97 | 2000 | | | | | | | |
| 1996 | Czech Rep. | 152 | 1068 | | | 6187 | 6396 | | | TFYR of Macedonia |
| 1996 | Germany | 97 | 1993 | | | | | | | |
| 1999 | Belgium | | | 41 | 955 | | | | | |
| 1999 | Slovenia | 207 | 817 | | | | | | | |
| 2000 | Greece | | | 34 | 916 | | | | | |
| 2000 | Slovenia | 265 | 2043 | | | | | | | |
| 2001 | Italy | | | 195 | 856 | | | | | |
| 2001 | Slovenia | 488 | 4405 | | | | | | | |
| 2002 | Areas, nes | | | 78 | 223 | | | | | |
| 2002 | Czech Rep. | 199 | 875 | 199 | 1809 | | | | | |
| 2002 | Slovenia | 250 | 1554 | | | | | | | |
| 2003 | Czech Rep. | | | 50 | 618 | | | | | |
| 2003 | Slovenia | 97 | 1817 | | | | | | | |
| 2004 | Slovenia | 167 | 3960 | | | | | | | |

Trade summary example – expanded

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CANADA

Elemental mercury imports and exports

Data source: UN DESA/ESD/UNSD - Comtrade statistics - downloaded 11Apr2006

Tarif system: SITC rev.2

Tarif code: 52216

Filter: Trade value ? \$US 0

Comments:

| Period | Exporting partner countries | Target country: Canada | | | | Importing partner countries | | | | |
|--------|-----------------------------|------------------------------------|--------------|---|--------------|-------------------------------------|--------------|--------------------------------------|--------------|--------------|
| | | Reported exports to target country | | Reported imports from partner country (on left) | | Reported exports to partner country | | Reported imports from target country | | |
| Year | Country name | Kg mercury | Value (\$US) | Kg mercury | Value (\$US) | Kg mercury | Value (\$US) | Kg mercury | Value (\$US) | Country name |
| 2004 | Areas, nes | | | 44 | 356 | 9 | 83 | | | Areas, nes |
| 2004 | Bosnia Herz | 48300 | 40068 | | | | | 24148 | 184780 | India |
| 2004 | Italy | 1125 | 5575 | | | 2312 | 14939 | 2312 | 15136 | USA |
| 2004 | USA | 3625 | 28423 | 7250 | 47310 | | | | | |

More discrepancies

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USA

Elemental mercury imports and exports

Data source: UN DESA/ESD/UNSD - Comtrade statistics - downloaded 11Apr2006

Tarif system: SITC rev.2

Tarif code: 52216

Filter: Trade value ? \$US 0

Comments:

| Period | Exporting partner countries | | Target country: USA | | | | Importing partner countries | | | |
|--------|-----------------------------|------------------------------|---------------------|---|-----------------|-------------------------------|-----------------------------|------------------------------|-----------------|--------------|
| | Country name | target country Kg mercury | Value (\$US) | partner country (on left) Kg mercury | Value (\$US) | partner country Kg mercury | Value (\$US) | target country Kg mercury | Value (\$US) | Country name |
| 2004 | Israel | 0 | 46000 | 5312 | 48979 | | | 40699 | 80253 | France |
| 2004 | Mexico | 27246 | 4000 | | | | | 135355 | 35389 | Guatemala |
| 2004 | Peru | 12437 | 85955 | | | | | 27000 | 53038 | Guyana |
| 2004 | | | | | | 63468 | 347006 | 15750 | 233565 | India |
| 2004 | | | | | | 64191 | 860315 | 238628 | 270335 | Mexico |

Trade summary data – observations

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- **Comtrade data summaries may not be consistent with national database**
- **Many reasons**
 - commodity vs. waste,
 - weight or currency conversions,
 - import data (tariffs) more reliable than exports,
 - some countries report trade movements by country of consignment – others by origin
- **Need to study specific cases to fully understand discrepancies, and improve reporting**

Value of summary trade data

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- **Comtrade data are not intended to be the definitive trade statistics for each country**
- **But they are certainly adequate to suggest trends, general magnitudes, values, etc.**
- **Large or ongoing discrepancies with a trading partner should be investigated**
- **Good potential as a useful tool in support of policy initiatives**

Regional trade flows

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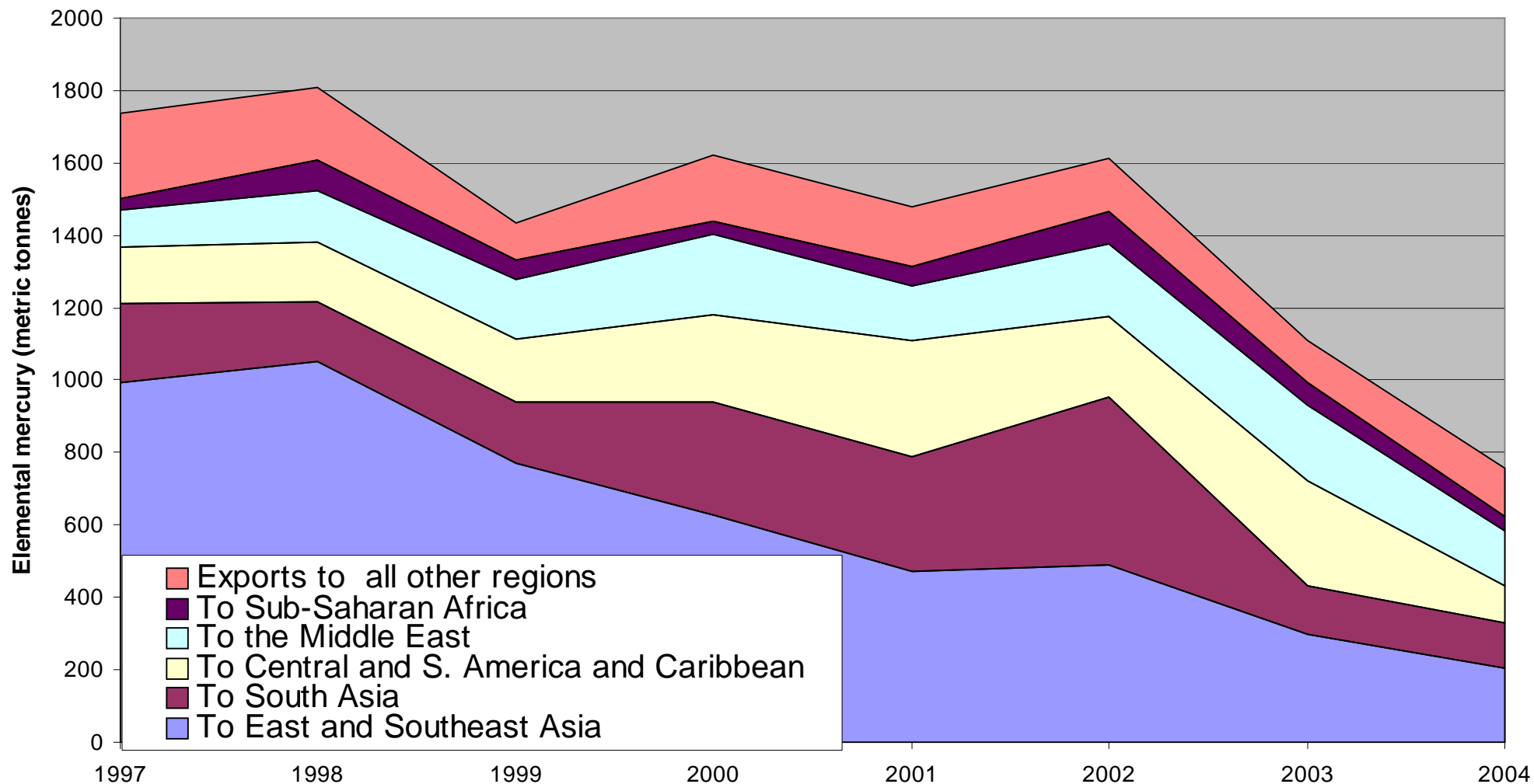
Purpose:

- to show global commercial mercury movements that are often not evident from country trade summaries

EU-25 transfers to other world regions

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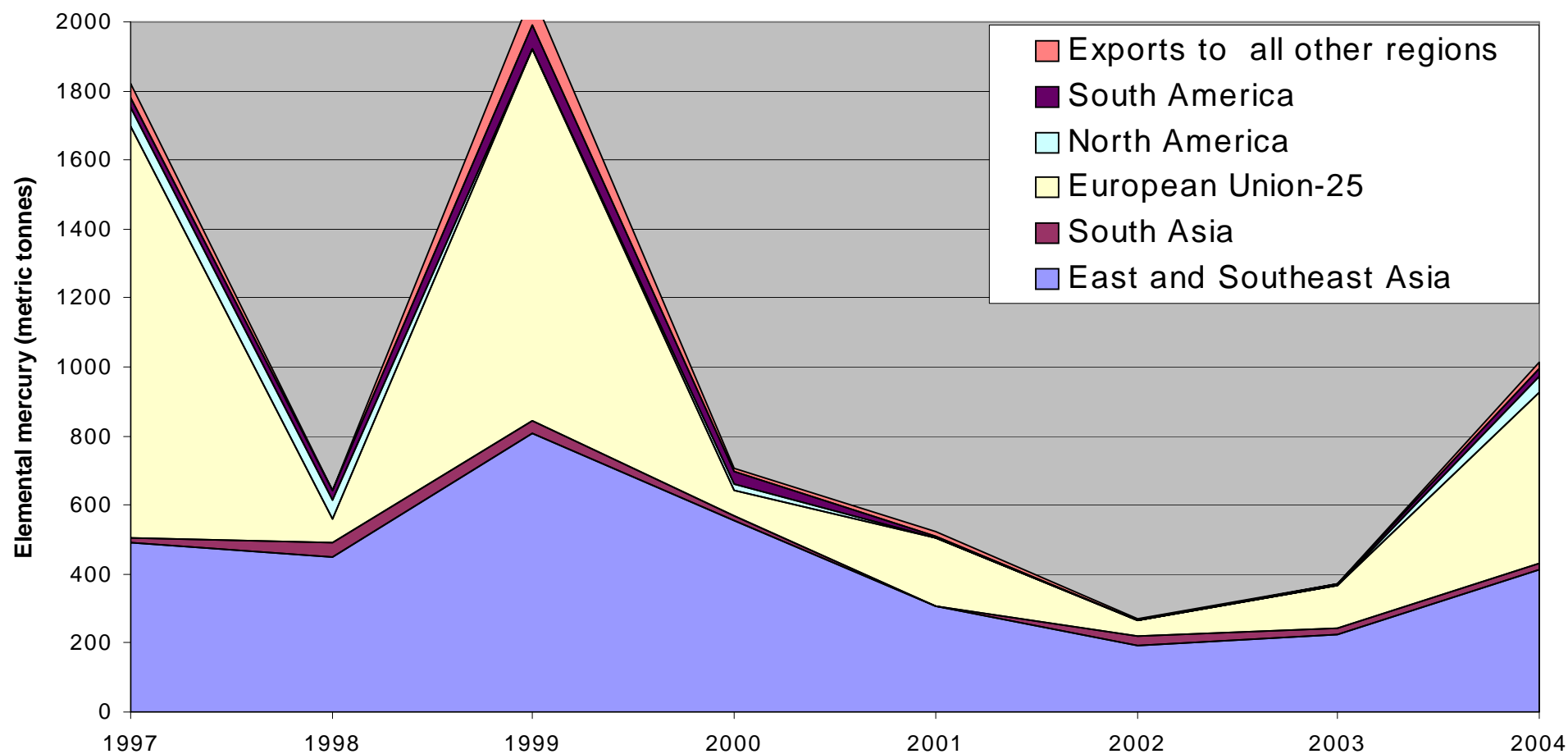
"European Union region" mercury exports



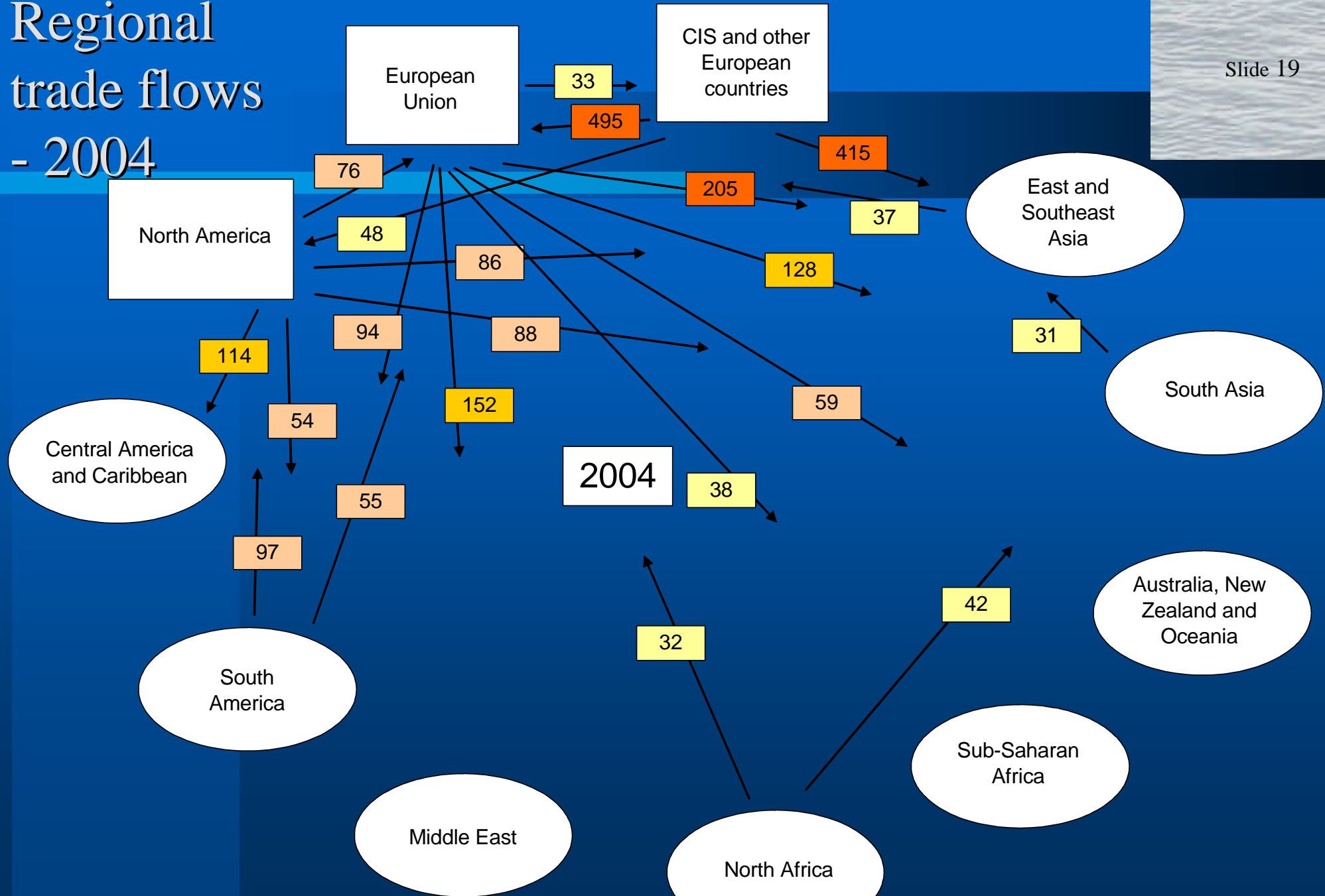
CIS (mostly) transfers to other world regions

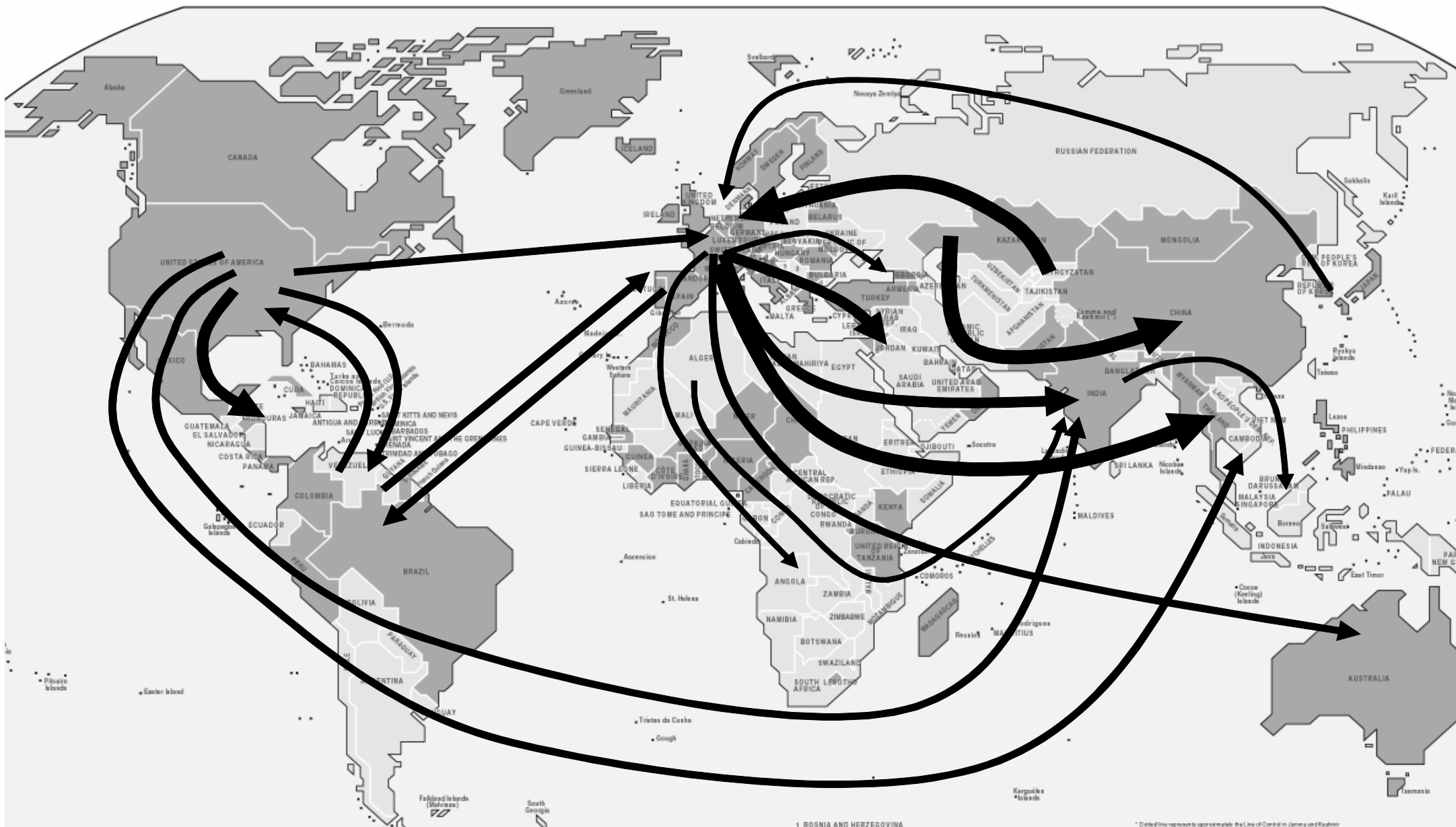
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"CIS & Other Europe region" mercury exports

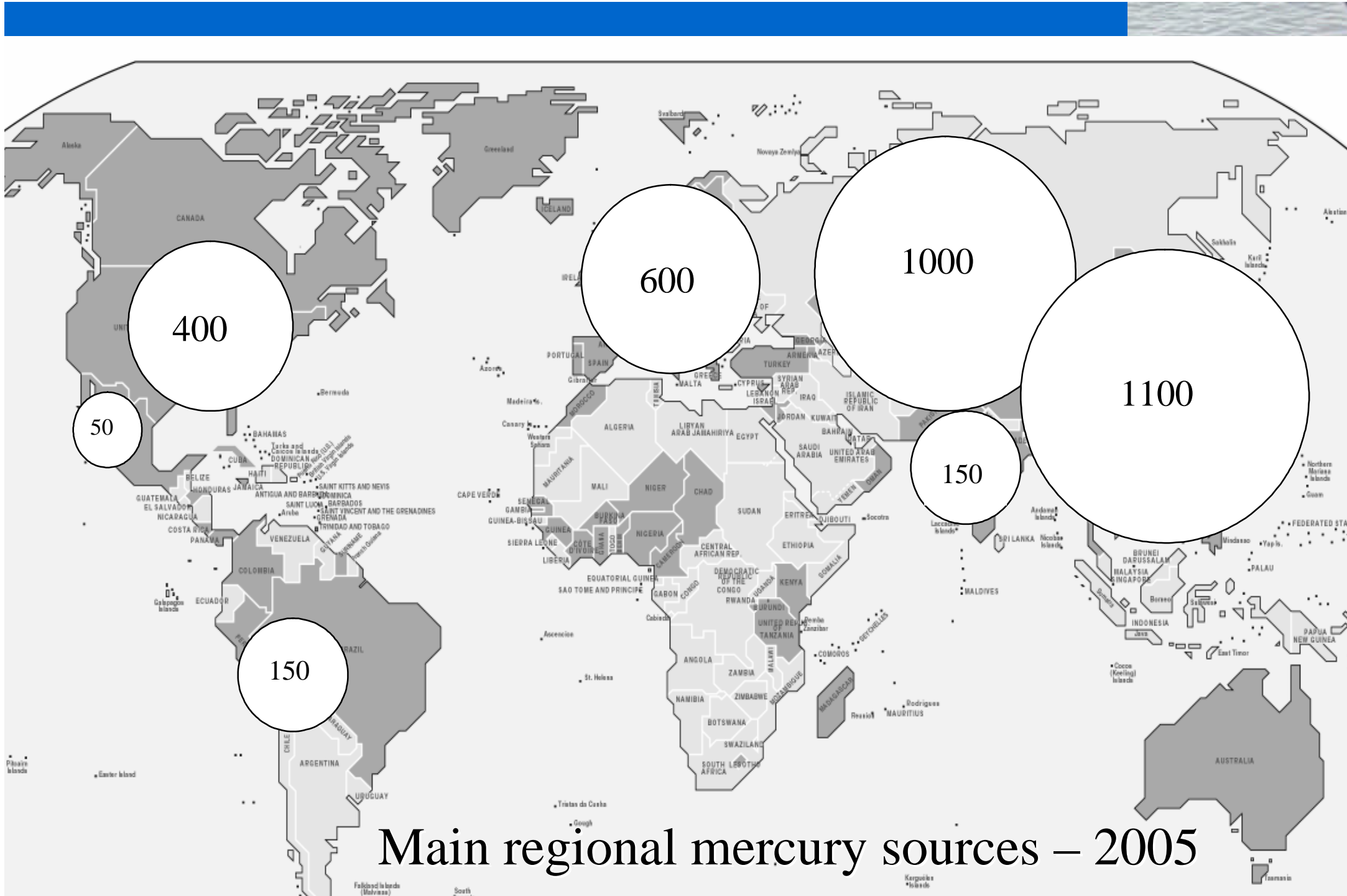


Regional trade flows - 2004

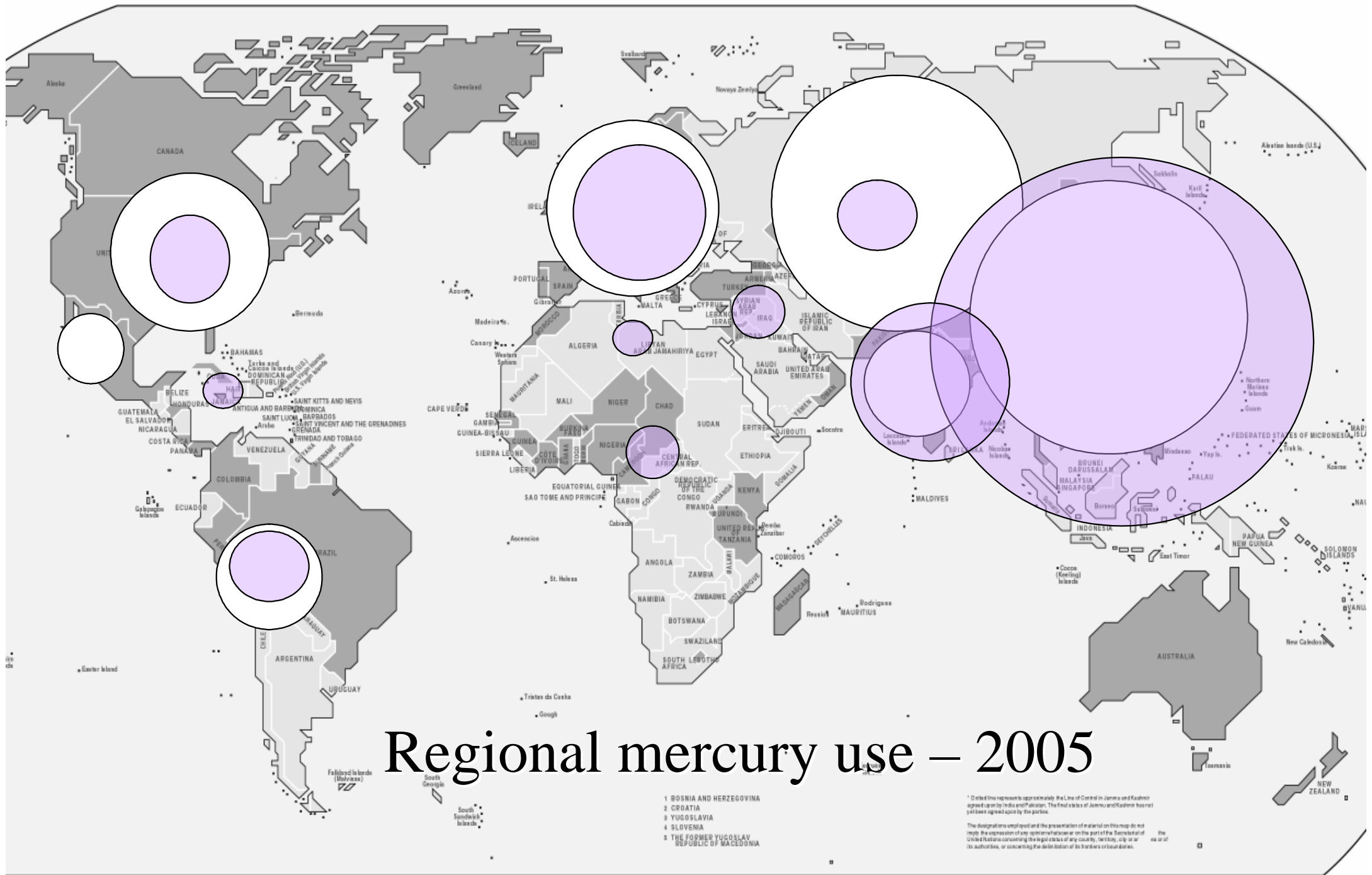




Commodity mercury trade 2004 – based on Comtrade



Main regional mercury sources – 2005



Regional mercury use – 2005

- 1 BOSNIA AND HERZEGOVINA
- 2 CROATIA
- 3 YUGOSLAVIA
- 4 SLOVENIA
- 5 THE FORMER YUGOSLAV REPUBLIC OF MACEDONIA

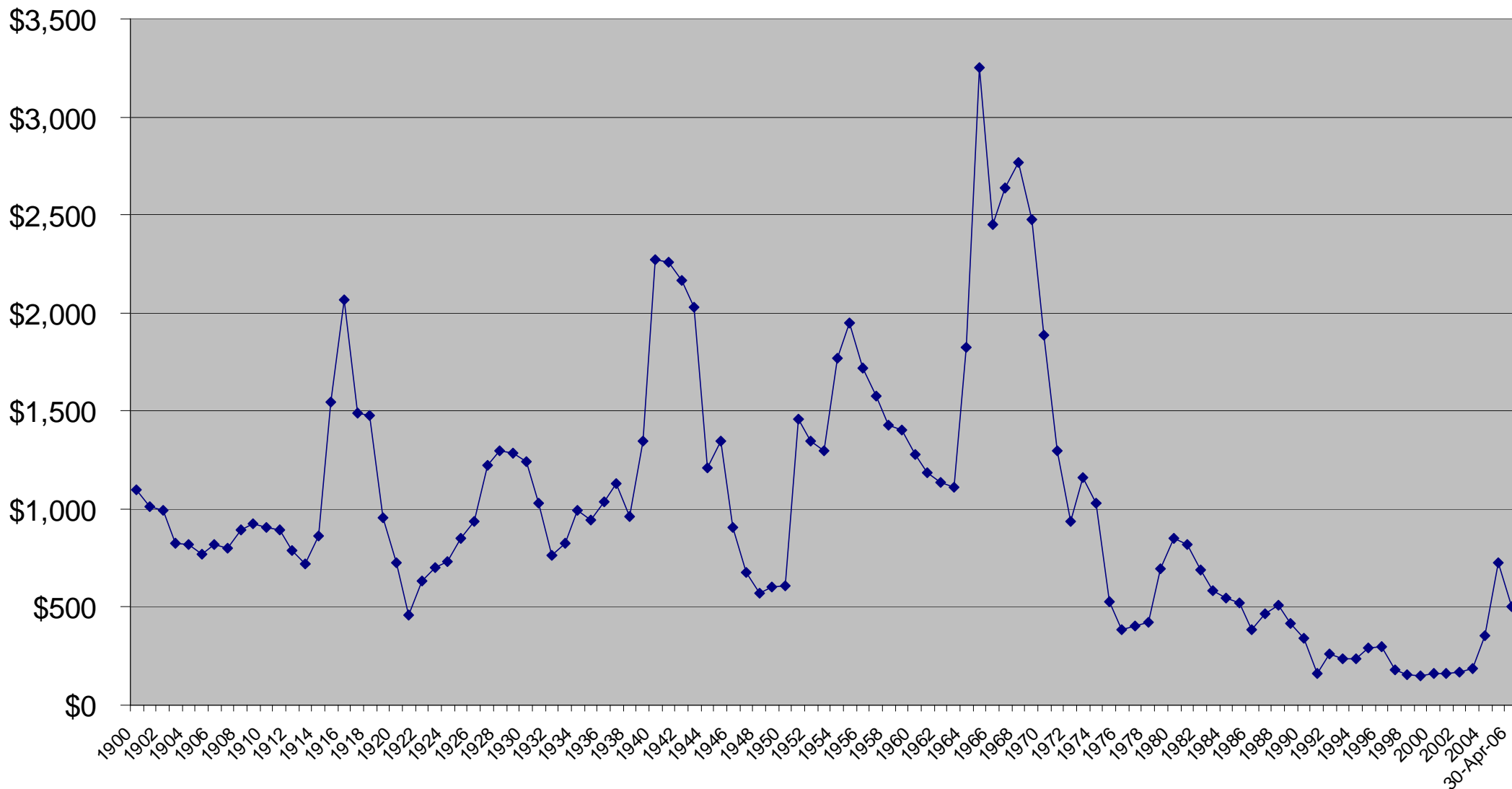
* Dotted line represents approximately the Line of Control in Jammu and Kashmir agreed upon by India and Pakistan. The final status of Jammu and Kashmir has not yet been agreed upon by the parties.

The designations employed and the presentation of material on this map do not imply the expression of any opinion whatsoever on the part of the Secretariat of the United Nations concerning the legal status of any country, territory, city or area or its authorities, or concerning the delimitation of its frontiers or boundaries.

100 years of mercury prices

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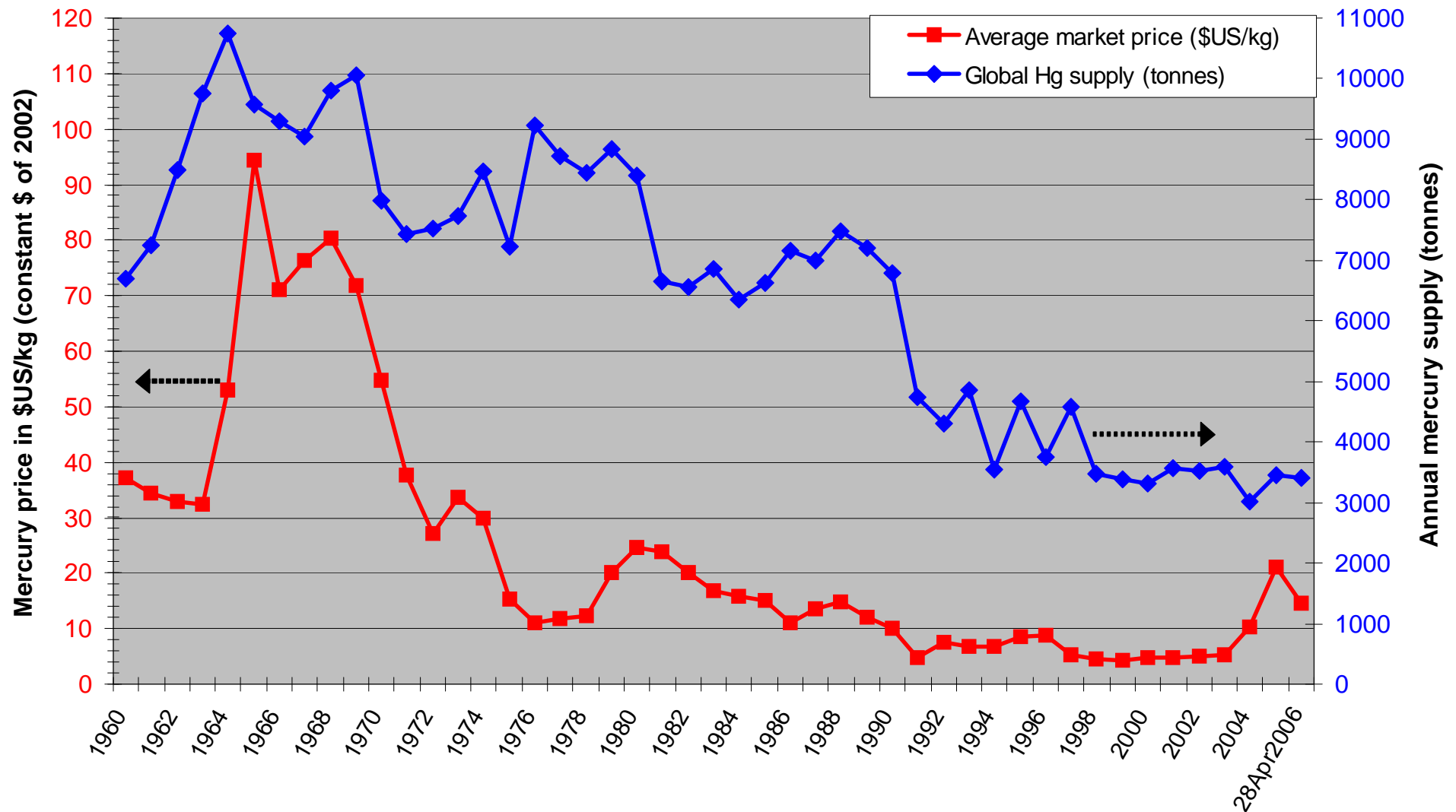
US Mercury Prices (\$US 2002/flask)



Upturn in the market price of mercury

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Mercury supply vs. market price 1960-30Apr2006



For discussion:

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- Will an EU export ban lead to third countries producing more Hg?
- What will be the impact of an EU export ban on Hg recycling?

Further discussion points

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- prospects for reducing mercury supply
- prospects for reducing mercury demand
- the role of scarcity in reducing demand
- the role of mine closures in creating scarcity
- the role of export ban and storage in creating scarcity

Acknowledgement and further info

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Many thanks to UNSD Comtrade for full access to its database and assistance of support staff

For further information on trade issues, please consult:

- **<http://www.chem.unep.ch/mercury/>**
- **Revised UNEP trade report**