

MINAMATA ONLINE

SEASON 1 - 2020

Mercury material flow: Supply, demand and trade

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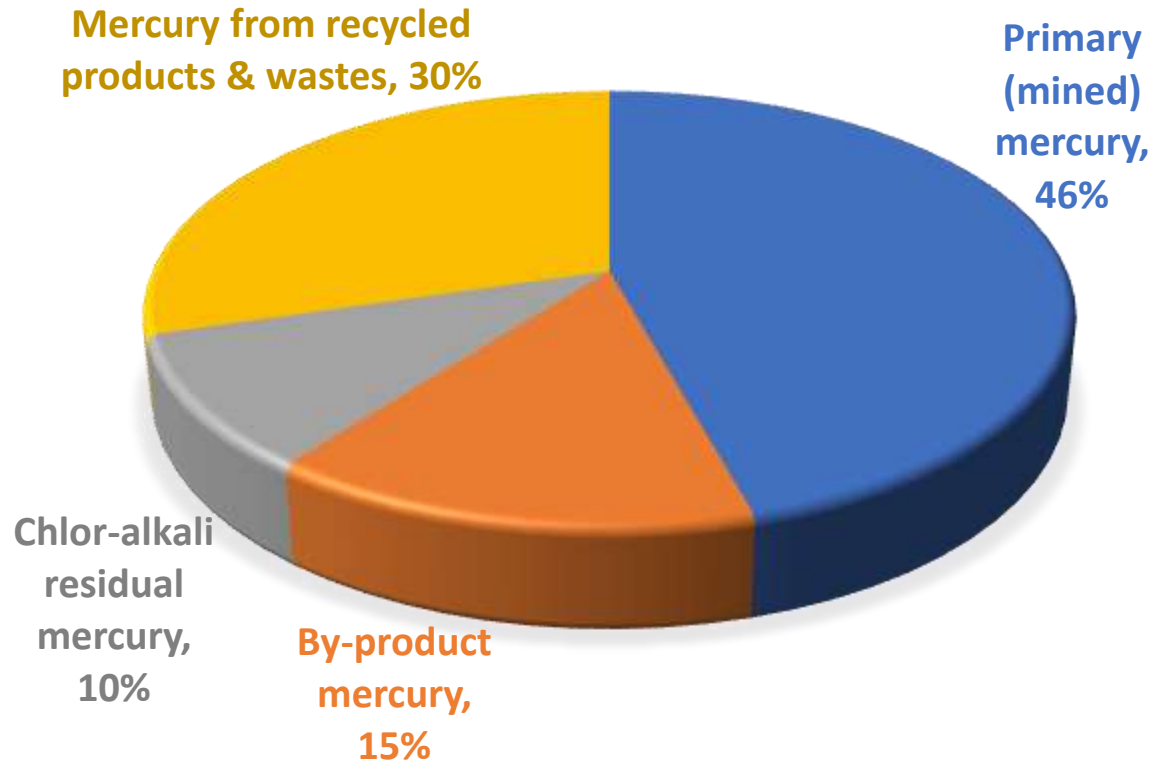
Tuesday, 29 September -- 14-15:30h CEST

Contents

- ▶ Supply = Elemental mercury sources
- ▶ Demand = Elemental mercury uses
- ▶ Trade = Documented mercury transfers worldwide
- ▶ Key issues

Mercury supply (going to end uses*)

- ▶ 2015 global Hg supply (not including stocks) approx. 4,100 tonnes, within a range of uncertainty



*As compared with Hg going to storage or disposal

Source: UNEP 2017

Main sources of mercury (going to end uses)*

- ▶ Hg mining
 - ▶ Almadén (Spain) closed 2003; China ongoing
 - ▶ New mercury mining in Mexico and Indonesia; quantities highly uncertain
- ▶ By-product Hg mostly from smelting of non-ferrous ores - trends?
- ▶ Chlor-alkali residual Hg - gradual reduction as fewer facilities come off-line each year
- ▶ Recycling of mercury-added products and mercury wastes - trends?

*As compared with Hg going to storage or disposal

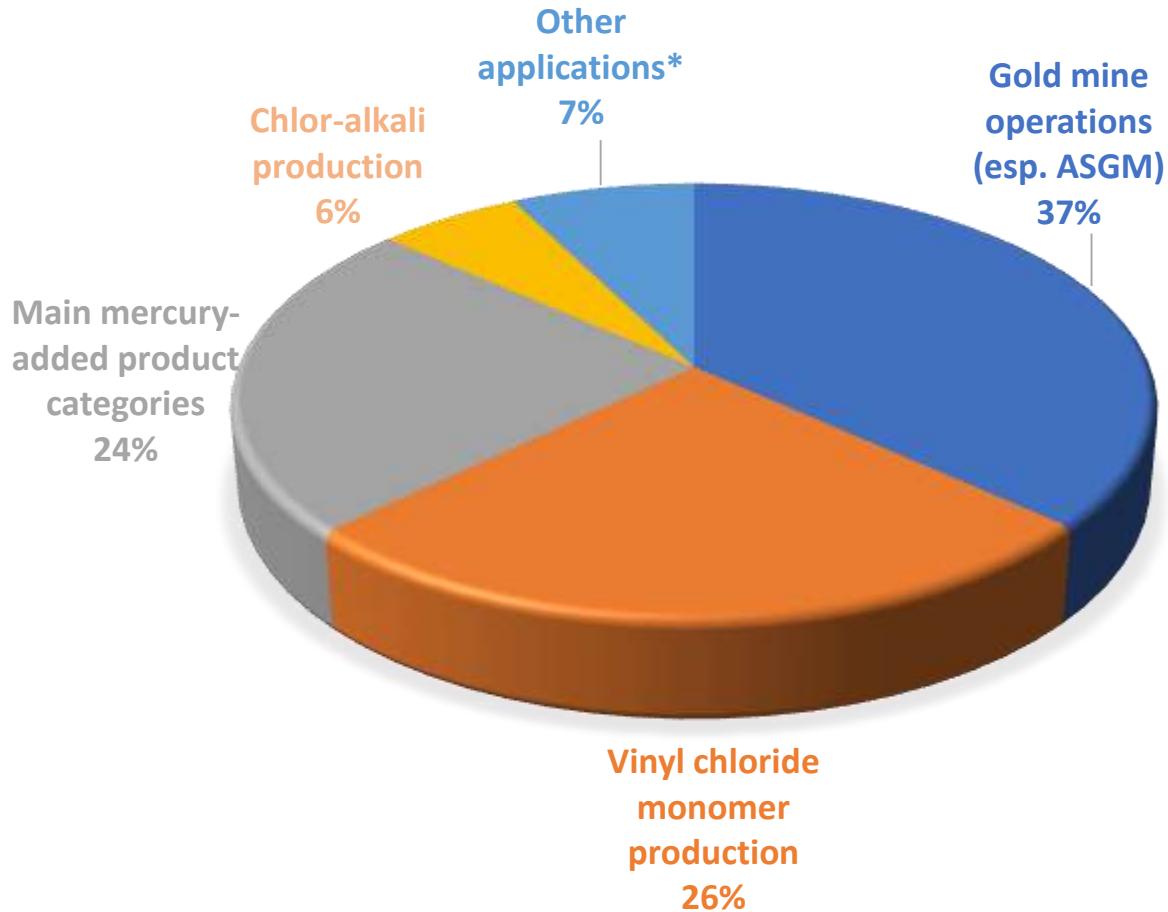
Rudimentary smelting of high-grade cinnabar in Jakarta



Mercury demand, 2015

- ▶ 2015 Hg demand approx. 4,700 tonnes (within a range of uncertainty)
 - ▶ ASGM and VCM production responsible for nearly 60% of total demand
 - ▶ Hg use declining in chlor-alkali and batteries
 - ▶ Hg in lamps and dental use also declining in most countries
 - ▶ Hg in measuring devices declining largely due to initiatives in hospitals and clinics
 - ▶ Switches and relays are targeted by regulations in Canada (import, mfg.), the U.S. (state regs), the EU (RoHS), and others
- ▶ Difference between 4,100 t. Hg supply and 4,700 t. Hg demand implies either a drawdown of stocks, or possibly an underestimate of primary Hg mining

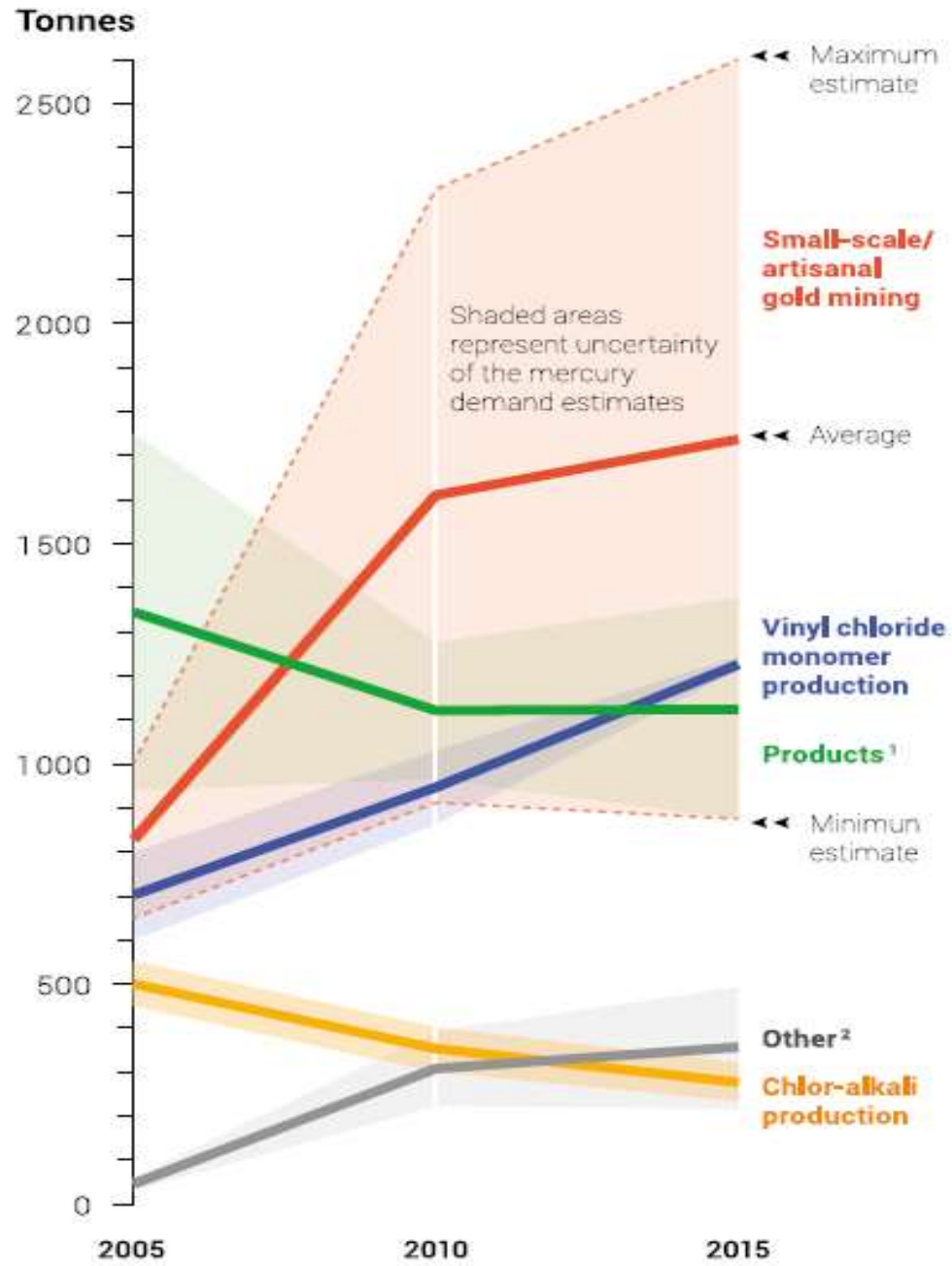
Global mercury uses, 2015*



*Includes diverse uses of mercury and mercury compounds in pesticides, fungicides, laboratory chemicals, catalysts, chemical intermediates, porosimeters, pycnometers, pharmaceuticals, mercury compounds in paints, traditional medicine, cultural and ritual uses, cosmetics such as eye make-up and skin-lightening creams, etc.

Source: UNEP 2017

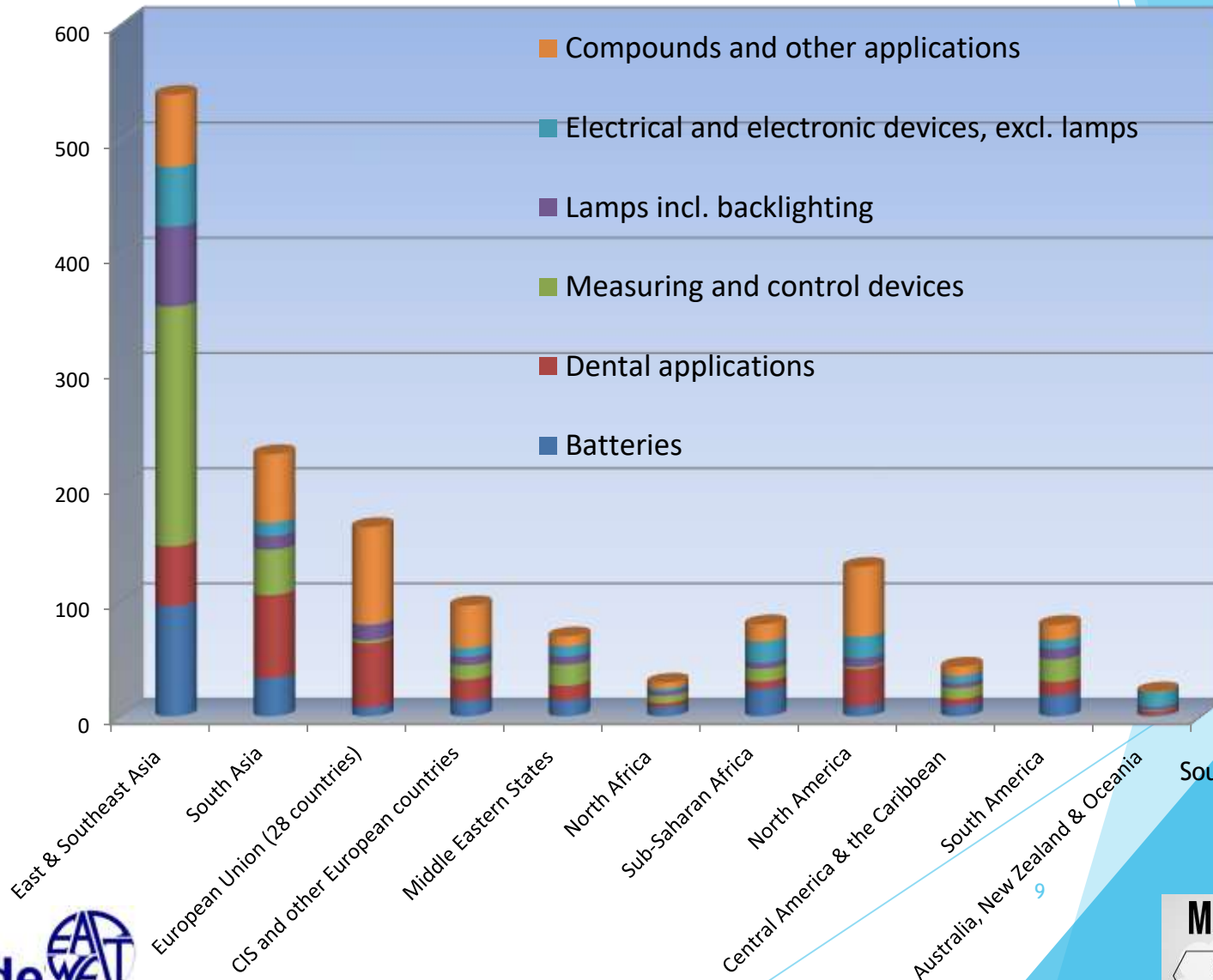
Trends in global mercury use by sector, with uncertainties



1. Batteries, dental applications, measuring and control devices, lamps, electrical and electronic devices
 2. Paints, laboratory, pharmaceutical, cultural/traditional uses, etc.

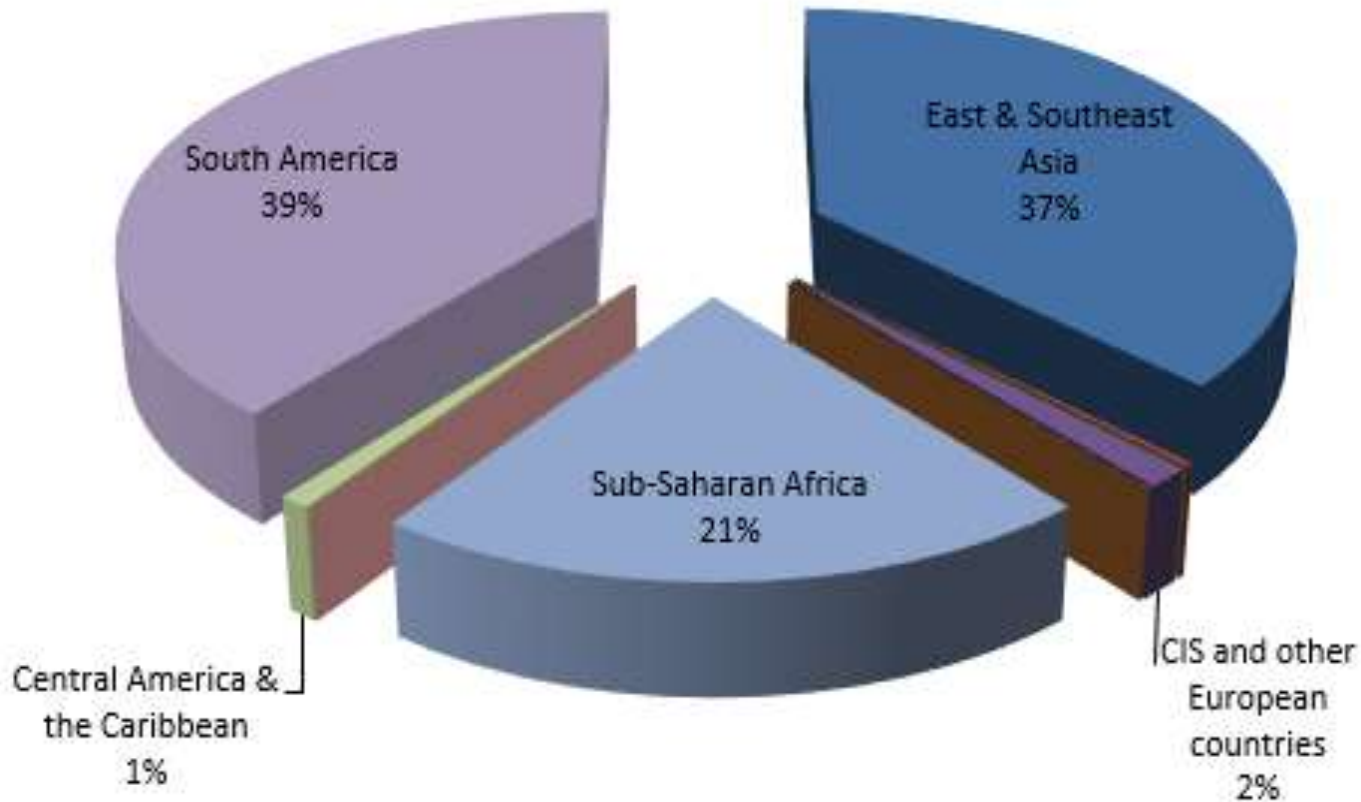
Source: UNEP 2017

Mercury use (tonnes, 2015) in products by region and by application



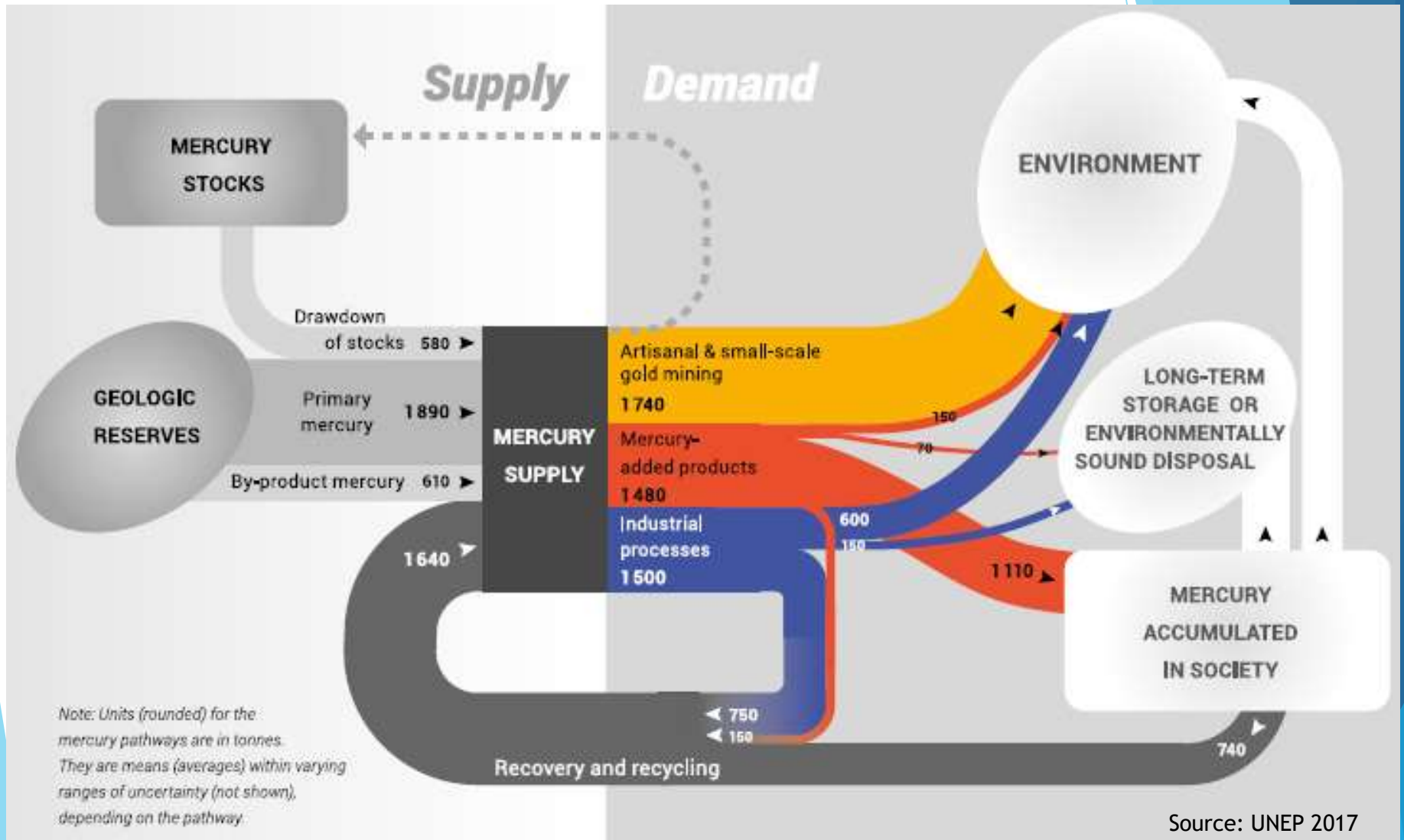
Source: UNEP 2017

Regional mercury use in ASGM, 2015



Source: UNEP 2017

Global mercury supply & demand, 2015



Mercury trade overview

- ▶ Significant reduction in global trade volumes:
 - ▶ reported imports 2,600 tonnes in 2010 down to 1,200 tonnes in 2015
 - ▶ reported exports 3,200 tonnes in 2010 (before EU export ban) down to 1,300 tonnes in 2015
- ▶ Major shift in international trading hubs 2010-15
- ▶ Evidence of informal or illicit transfers (Mexico, Indonesia, Colombia, etc.)

Mercury exports by Indonesia & Mexico

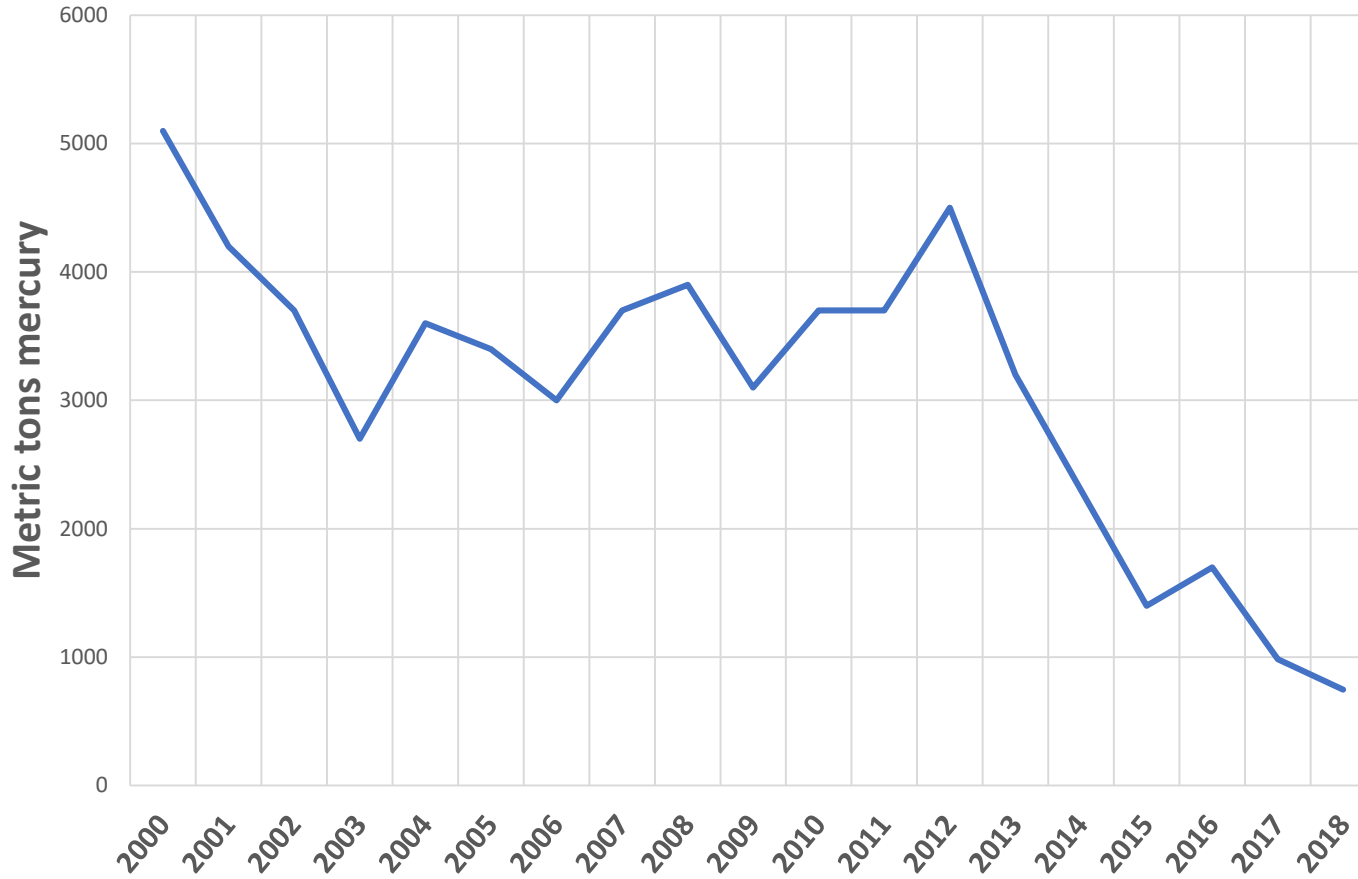
Elemental mercury exports (kg) as reported by:

	<u>Indonesia</u>	<u>Mexico</u>
2015	283,767	306,695
2016	*311,609	266,648
2017	151,853	200,191
2018	minimal	230,181
2019	minimal	62,572

*adjusted

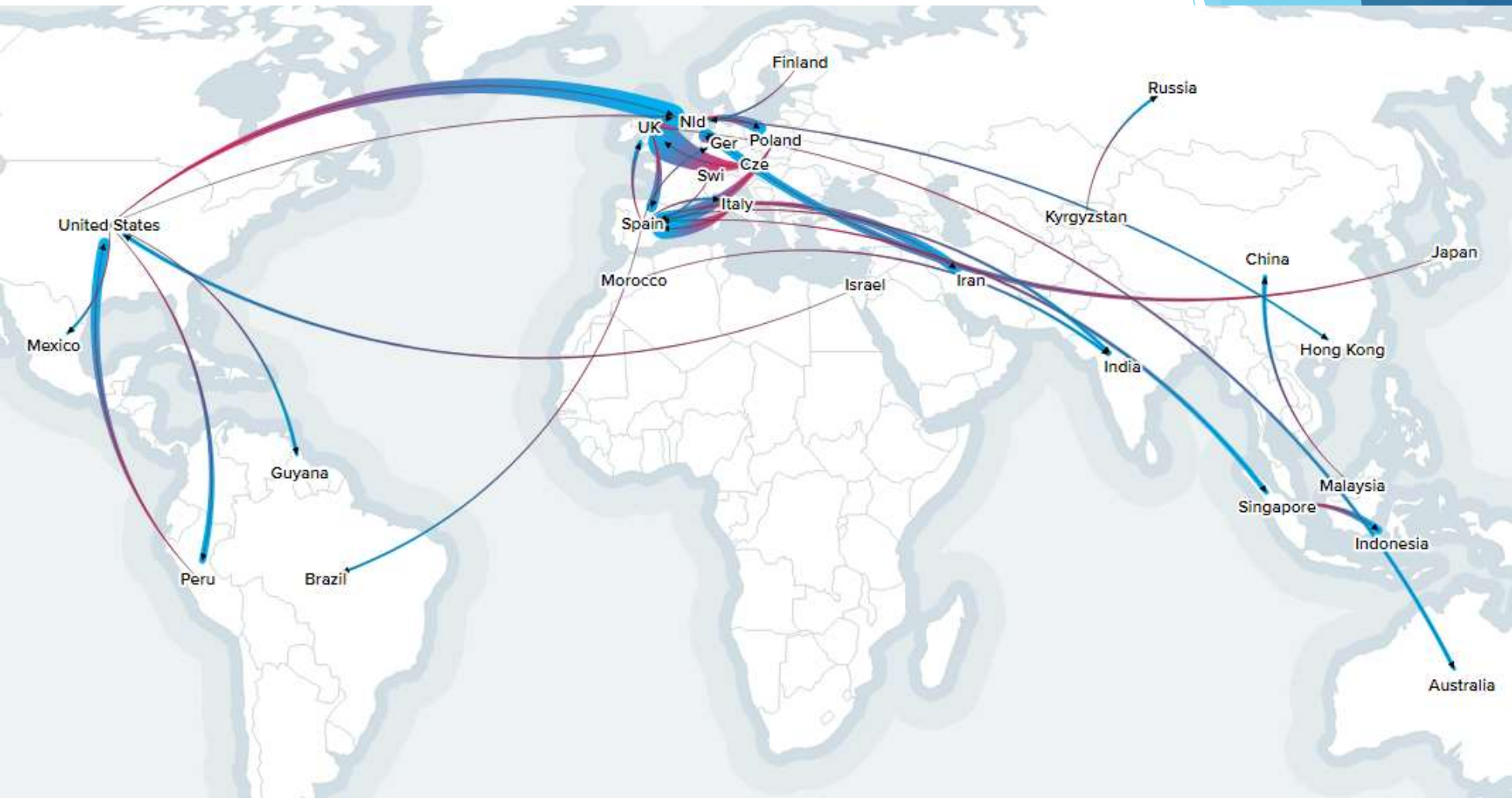
Sources: Comtrade (Indonesia), SIAVI (Mexico)

Mercury traded worldwide 2000-2018



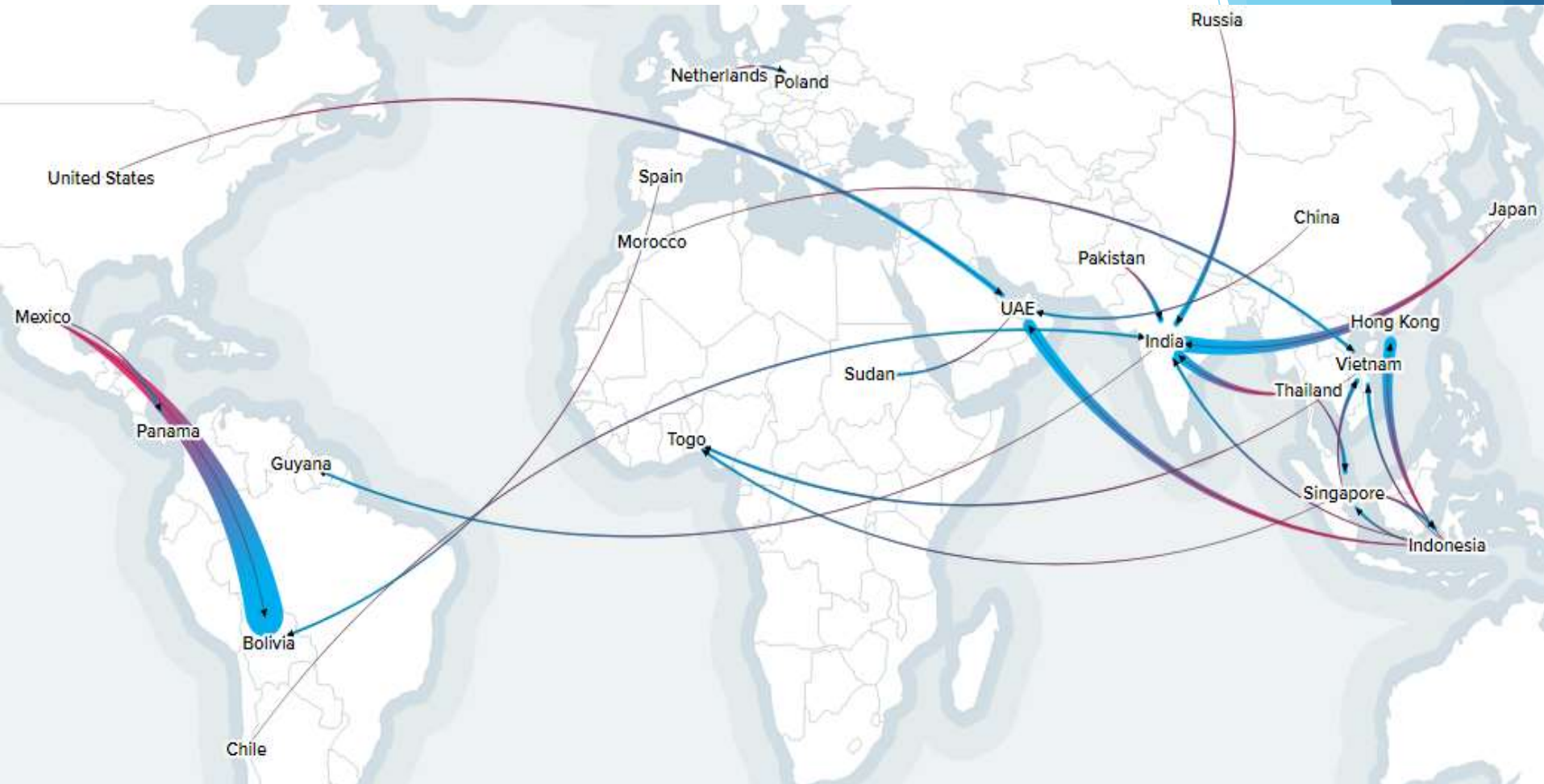
Source: Comtrade data as interpreted by Chatham House algorithms for <resourcetrade.earth>

2005: 3,400 t mercury traded worldwide



Source: Comtrade data as interpreted by Chatham House algorithms for <resourcetrade.earth>

2017: 984 t mercury traded worldwide



Source: Comtrade data as interpreted by Chatham House algorithms for resourcetrade.earth

Mercury trade issues (1)

- ▶ Uncertain quality of some data reported to Comtrade (“mirror” statistics, country of origin, quality control, coding mistakes, etc.)
- ▶ Limited transparency of some data due to confidentiality agreements, commercial protection, etc.
- ▶ 2-tier mercury price encourages illegal transfers (DELA Germany “waste” exports, circumventing China export ban, etc.)

Mercury trade issues (2)

- ▶ Scrutiny of Indonesia and Mexico Hg exports appears to have reduced legal Hg exports
- ▶ Increasing volume of illicit and informal Hg trade; therefore increased international attention
- ▶ Hg trade increasingly follows the same routes as gold trade (India, UAE, etc. intermediaries) or drugs (Colombia)
- ▶ Free trade zones also trading hubs (Singapore, Hong Kong, Panama, etc.)

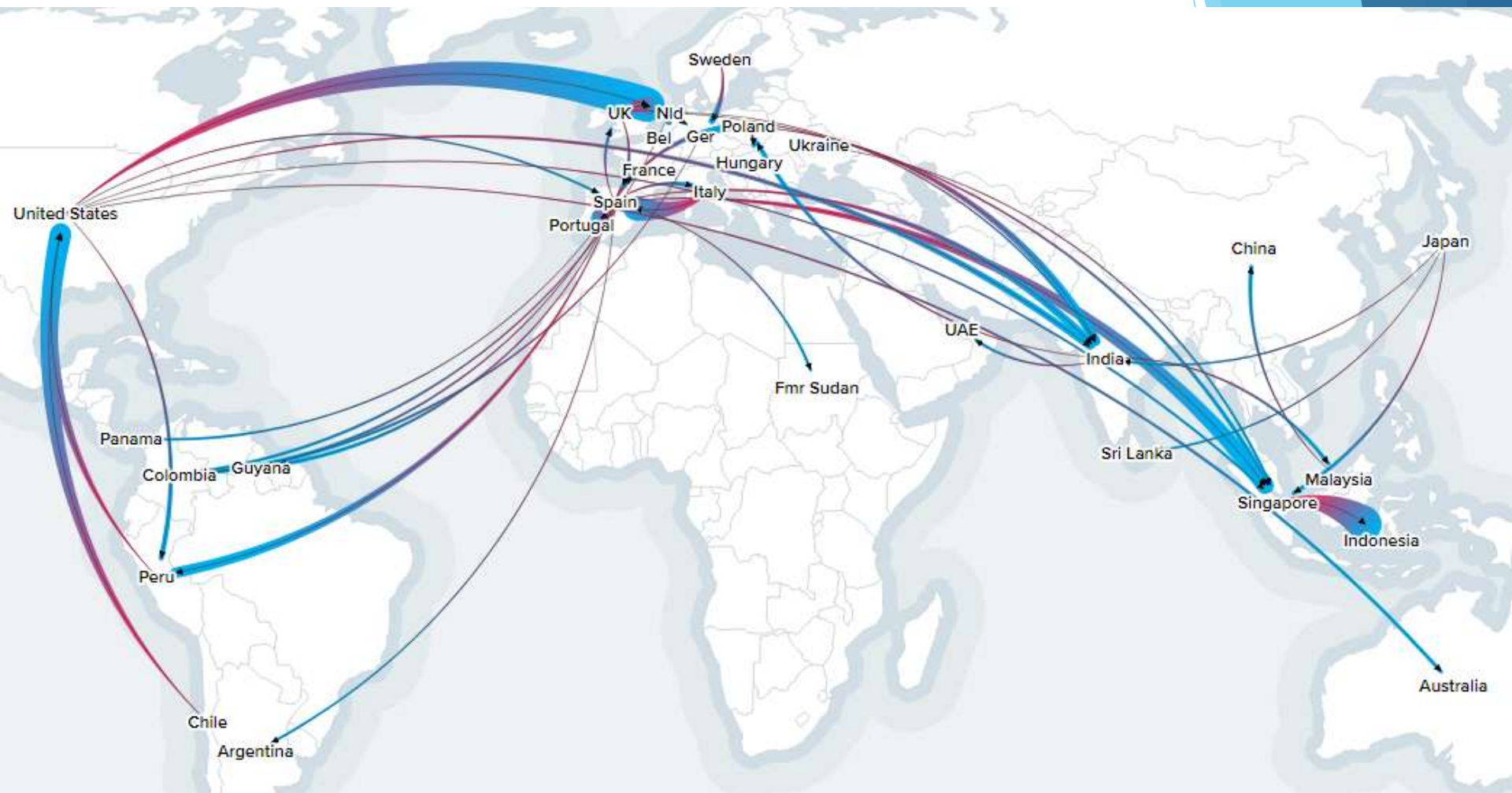
Thank you!

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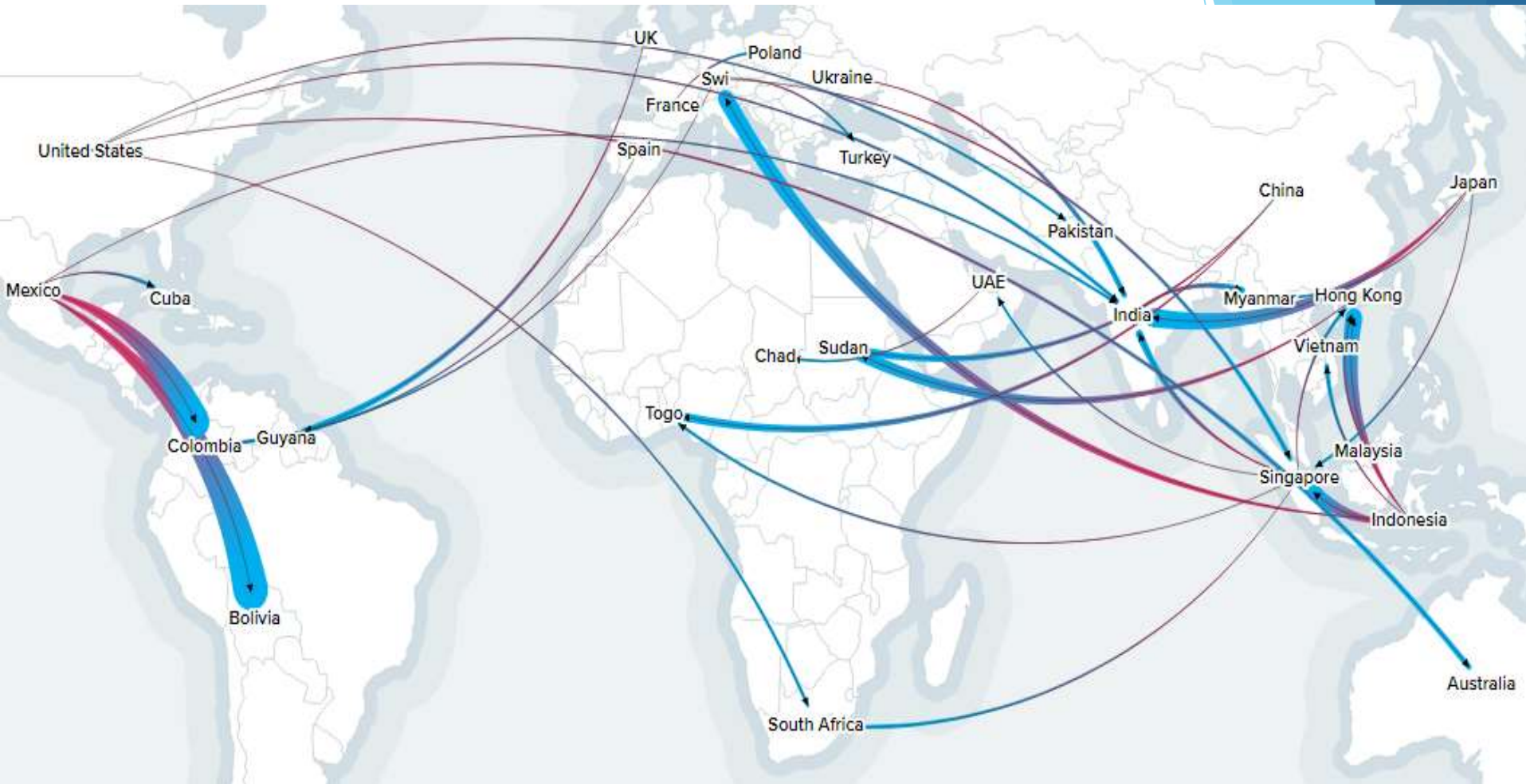
peter.maxson@gmail.com

2010 - 3,700 t mercury traded worldwide



Source: Comtrade data as interpreted by Chatham House algorithms for <resourcetrade.earth>

2015 - 1,400 t mercury traded worldwide



Source: Comtrade data as interpreted by Chatham House algorithms for <resourcetrade.earth>